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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

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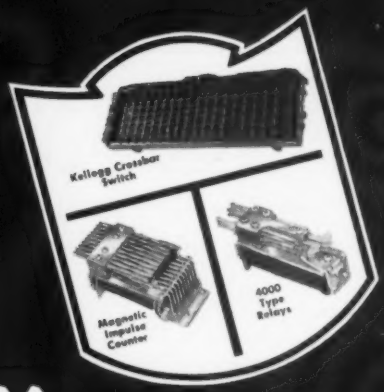

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FLASHES AND PLUGS

SCRUPLE SNOOPERS. The Library of Congress has a special legislative reference service which can turn up practically any information a congressman desires.

A distinguished senator one day sent researchers a quotation and requested the author's name. Through book after book the learned librarians searched. They cudgeled their brains. They even poured over ancient manuscripts and translated Egyptian.

But finally they agreed it was no use. Timidly they telephoned the senator's office and reported their inability to fulfill his request.

"Oh, that's all right," said his secretary. "The senator wrote that himself. He just wanted to be sure nobody else had said it."

• • •

THE TELEPHONE HABIT. A Pan American World Airways flight purser told how he recently received this rebuff from an elderly woman passenger:

"Now look here, young man—we don't want any of this flying faster than sound. My friends and I want to talk."

• • •

HIGH FLYER. Sammy Wilson, 4½, noticed a strange looking object near his new home in Fullerton, Cal.

Sammy gripped the object and tugged at it, but it tugged right back. Within a short time, Sammy found himself floating through space.

He had taken hold of a wire being strung and looped over the cross-arm of a utility pole. The thing tugging at the other end was an electric winch.

The boy's mother saw her screaming and kicking Sammy some 10 feet off the ground and gaining altitude. She clambered up the pole and managed to grab the boy with one arm while keeping her other arm wrapped about the pole.

In the meantime, the mother's and boy's cries attracted the attention of linemen, who shut off the power winch and rushed up the pole to bring boy and mother back safely.

Apparently the linemen at first interpreted Sammy's tug as a signal to start the winch.

Sammy was treated by a physician for severely blistered hands, souvenirs of his spectacular flight.

• • •

PLUMB CRAZY. While doing some work for a plumbing company in Independence, Mo., recently, a workman sawed through what he thought was a large tree root. It turned out to be a cable containing 400 pairs of telephone wires.

Cable splicers worked throughout the night putting back in service 1,000 telephones served by the cable.

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by FRANCIS X. WELCH WASHINGTON EDITOR

Benson indicates to National Press club that Agriculture Department, including REA, might be improved by more resignations. Beirne kept in tow by House committee in hearing on Taft-Hartley amendments. FCC still keeps telephone company "in the middle" in Katz case.

SECRETARY OF AGRICULTURE Benson did not exactly pour oil on the troubled waters at REA when he commented upon the recent resignation of REA Administrator Wickard. The occasion for this was Benson's appearance as a guest speaker at one of the "get acquainted" luncheons of the National Press Club.

After his main speech, commenting on over-all policies of the Agriculture Department, somebody asked Benson what the story was on Wickard's resignation. The questioner put the issue bluntly: "Why did the administration force Claude Wickard to resign?" Benson replied: "It is an exaggeration to say he was forced to resign. He did resign, and I am glad he did, because I think probably we can improve the administration of that agency."

Answering another question from the assembled newspapermen as to the possibility of Ancher Nelsen, lieutenant governor of Minnesota, succeeding Wickard, Benson said, "That is a presidential appointment. I can only say that if he (Nelsen) is appointed, you will have a very good man at the head of REA." (Nelsen was slated to see Eisenhower about the job this week and will probably get it.)

Regarding other changes and resignations at REA, Benson said quite frankly that if any employe in the Agriculture Department honestly finds himself out of sympathy with the present leadership, or what it is trying to do, he has only to raise his hand and the secretary will be glad to excuse him from further performance of his duties. Benson said he would do that "if Civil Service will let us do it."

One other provocative question asked was: "How long will it be before there are more Republicans than New Dealers in the Agriculture Department?" Replied Benson: "We have more Republicans than New Dealers now." He considers most of the department's employes "good and faithful public servants," but said, "there are some malcontents." They, he added, "are not going to be happy in their work and therefore won't contribute much." Benson continued: "These are the ones we are trying to find." In short, Benson indicates that he thinks the department —probably REA included—might be improved by a few more resignations, along with replacements more in sympathy with the present leadership and policies.

The possibility that more changes will be made was seen in the action taken by President Eisenhower in sending a reorganization plan for the Agriculture Department to Congress. Unless this is disapproved within a specified period, it will become effective under the Administrative Reorganization Act.

As Eisenhower's plan went to Congress, the language was too broad to indicate definitely what the President might have in mind in the way of shifting around agencies within Agriculture. But it would give Secretary Benson wide authority to rearrange his department as he sees fit. Presumably, this includes REA.

There is no immediate prospect of changing REA status within the department. But there is persistent speculation that the rural telephone loan program may somehow be eventually split off from the rural electrification program and set up more on its own organization. This is strictly a rumor, at the moment.

The Eisenhower reorganization plan would not give Benson any authority to name future REA administrators. That authority must remain under the present law (Rural Electrification Act) with President Eisenhower himself. But Benson would have authority to do just about everything else in direct supervision of REA policies, if the reorganization program goes through, as it probably will.

Moving now to REA financial affairs, Benson announced a revised 1954 Agriculture Department budget, which slices $130,800,000 from the budget for that department submitted by ex-President Truman. This is for the department as a whole, of course. Rural electrification would take a cut of 55 million dollars—reducing the 200 million dollars requested in Truman's budget to $145,000,000 for all types of loans (electrification and telephone) in the fiscal year beginning July 1.

For telephone loans, the REA would get 50 million dollars under Eisenhower's budget, compared with 65 million dollars requested by Truman, and 35 million dollars during the current (fiscal 1953) year. In the past years Congress has occasionally increased budget requests for REA on its own initiative. This could happen again despite the administration's pledge to seek economies and cut funds wherever possible.

Beirne Needles Congress

Joseph A. Beirne, forthright and outspoken president of the CIO Communications Workers of America, made one Congressman pretty mad last week when he testified on proposed amendments to the Taft-Hartley Management-Labor Relations Act.

Beirne, whose union claims to represent some 300,000 telephone industry workers, brought a 23-page statement into the hearing room of the House Labor Committee. But he had scarcely gotten started when one Republican member of the committee, Representative Kearns of Pennsylvania, blew the whistle on him. What made the congressman flare up seemed to be a strange, but hardly a contemptuous, statement by Beirne that the Taft-Hartley Act of 1947 "was conceived almost in shame."

Representative Kearns, evidently sen-

sitive about any such moral connotation of congressional action, hit the ceiling. "Why, I voted for the Taft-Hartley Act and I'm not ashamed of it," Kearns said. "As a member of Congress I don't have to sit here and take this sort of thing." With that the Pennsylvania Republican walked out of the hearing room.

Ten minutes later the hearing was recessed for lunch. After lunch, when Beirne returned to the wi'ness stand, he was told the afternoon session had been called off. The reason apparently was due to a question raised by Kearns to the committee chairman, Representative McConnell (R., Pa.), as to whether Beirne ought to be disciplined for his remarks.

The whole thing blew over, however, when the committee decided the next day to get on with the hearing after Mr. Beirne agreed to withdraw the offensive word. Beirne will be allowed to complete his statement at a later date. The official explanation was that so many witnesses wanted to be heard that the committee did not care to take any extra time on delays which might be encountered in more controversial types of testimony.

Before Beirne was cut off by the rebellion of Representative Kearns, he had made only two points by way of recommendations for Taft-Hartley amendment: (1) Elimination of the non-Communist affidavits for union officers; (2) rejection of proposed bans on industry-wide and system bargaining.

The CIO Communication Workers of America headquarters revealed, however, that Mr. Beirne would have made the following additional three recommendations:

(1) To end the 80-day injunction provision against industry-wide strikes and substitute direct Congressional action in such emergencies.

(2) Lengthen the present six-month statute of limitations on filing unfair labor practice charges.

(3) End employe abuses of the "free speech" provisions of the law.

Beirne conceded that the previous position taken by the CIO for repealing the Taft-Hartley Law outright has become an unrealistic demand under present conditions, so that his union is now accepting the "amendment approach." He warned, however, that labor unions will not accept any "Trojan Horse," whereby an assortment of changes are tied up in a "package deal" with other amendments repugnant to labor union interest.

The FM Multiplex Application

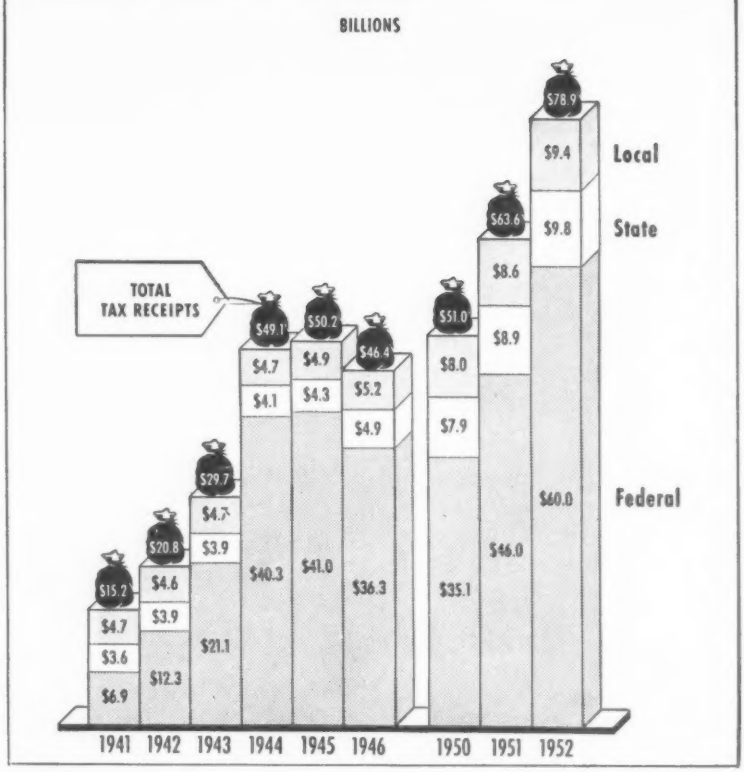
Telephone companies should be interested in the latest move in the field of FM radio broadcasting. It is an effort on the part of an FM radio station (Mount Mitchell Broadcasting, Inc.—Station WMIT-FM, Charlotte, N. C.) to have the Federal Communications Commission change its present rule against the use of FM commission radio broadcasting licenses for specialized audiences rendering a service to be paid for by the listening group. At present, FCC licenses for FM radio broadcasting limit the service to general public reception in the licensed areas. As in the case of conventional (AM) radio and TV telecasting, this means that FM broadcasting must be free to the listeners although it may cost the advertisers some money.

But the father of FM radio, Dr. Edwin H. Armstrong, professor of electrical engineering at Columbia University, and John H. Bose of Columbia's Hartley Research Laboratories had come up with a new wrinkle. This is the perfection of a system for supplemental simultaneous broadcasting from the same transmitter, using a technique known as "multiplexing."

The interesting part is that the listeners on the regular FM radio broadcasting channels are unaware that there may be a second or third simultaneous supplemental program being sent out over a different channel. In other words, the normal program is not affected by the supplemental programs. This means, in plain language, that the FM radio station can sell the service on the supplemental program channel for specialized programs of limited

Tax Receipts of Federal, State, and Local Governments

SELECTED FISCAL YEARS 1941-1952



This chart, from *Facts and Figures*, publication of the Tax Foundation, shows the tremendous rise in the Federal government's share of total U. S. tax receipts. Eleven years ago, Federal, state, and local receipts were about equal, but by last year, as shown, the Federal government was taking 76%, the states 12½%, and local governments less than 12%.

interest, to be paid for on a subscription basis. But to do this, it will be necessary to change the FCC rule.

Such is the significance of the petition filed with the FCC by Attorney Darrell Mise on Mar. 3, on behalf of station WMIT-FM. The FCC failed to act on a similar previous application. But it has appointed an FCC engineer to make a special report on it this time, which means that something might happen. Of course, the idea of the North Carolina FM state application is mainly to improve the revenue possibilities of its FM broadcasting licenses. The use of the "multiplex" channels for various one-way communication purposes would include the following: (1) Special subscription programs, such as transit radio, facsimile, doctor paging, truck and taxi dispatching, and other industrial uses; (2) improving the tonal quality of the main broadcast; (3) public emergency uses for government authorities.

Obviously, the telephone industry has an interest in any such communication service being performed in a local area even though it is a strictly one-way proposition with no back-talk possible. Yet, it is difficult to ignore the FM radio stations' plea for a chance to make a dollar, after all these years when the FCC restricted FM broadcasting to the limbo of non-commercial operations. Now, that FM is finally free to do business, TV has pretty much stolen the show, as far as public attention is concerned. It has been a hard life for Major Armstrong's brainchild. Maybe "multiplex" will let it earn a few dollars. But the telephone industry will want to make sure whether or not it will be at the expense of the telephone business.

The Katz Case Again

President Eisenhower will have to name more than one new member of the Federal Communications Commission before the telephone industry can look for a new deal on the celebrated "Katz Case." This was the case, originally decided on Dec. 21, 1951, throwing out Bell System company tariffs which gave the company the right to discontinue telephone service used for unlawful purposes upon complaint of the police or other recognized public authorities.

The test case, involving an alleged gambler in the District of Columbia, produced an FCC decision to the effect that the telephone company (Chesapeake & Potomac Telephone Co.) could not relieve itself of its responsibility for furnishing service (or of its liability for failing to furnish service) merely because the Washington police department complained about some bookie using his telephone to accept wagers.

The effect of this was to leave the telephone company squarely in the middle of a demand by the police that it stop aiding and abetting a law violator on one side and the possibility of being sued by the subscriber for unwarranted discontinuance of service on the other. In vain, the telephone company protested that it was not interested in trying to prove whether or not a given subscriber used his telephone service for gambling operations or for any other illegal purposes.

Getting evidence, said the company's attorney, is police business or the district attorney's business. Certainly it is not a telephone company's business. On the other hand, unless the telephone company can be protected by some rule allowing it to discontinue service upon complaint of public authorities, the subscriber could sue and perhaps get heavy damages.

What's more, the burden of proof would be on the telephone company to show that the subscriber was actually engaged in the alleged illegal use of service. This puts the telephone company in the unenviable position of either getting evidence against its own subscriber, or being prosecuted by the police as an accessory.

For this reason, the American Telephone & Telegraph Co. and the Chesapeake & Potomac Telephone Co. asked for a rehearing. The state commissions of California, Florida, Missouri, and Nebraska asked to intervene on behalf of a ruling which would let the responsibility for such service connections be controlled by state commissions in their own areas.

The case has been kicking around for over a year just on a petition for rehearing. In the process, the telephone companies submitted what they thought was a fair compromise. They suggested that the service regulation be amended to allow discontinuance in such cases where the company had "probable cause" to believe that its facilities were being used for illegal purposes. For further subscriber protection, the telephone company agreed to a rule which would give the subscriber advance notice and opportunity to protest, except in unusual cases demanding immediate action. "Probable cause" was defined as notice or complaint, or request from the police, district attorneys, or other duly constituted law-enforcement authorities.

But once more the FCC has turned down the telephone companies flat, in a 4-to-1 decision, with Chairman Walker dissenting, and Commissioners Webster and Bartley not participating. The decision was handed down on Mar. 19, one day before Commissioner Eugene H. Merrill's interim appointment was withdrawn by President Eisenhower in favor of John C. Doerfer, chairman of the Wisconsin Public Service Commission.

Even assuming Doerfer would eventually join the views of Chairman Walker (they would only be two career *regulatory* members on this commission), the decision in the Katz Case rehearing would still be 3 to 2, with the views of Bartley and Webster unknown.

So, it looks as if it might take an act of Congress to relieve the telephone industry of the ridiculous position of being "damned if you do and damned if you don't" into which the FCC has placed the interstate telephone companies.

Speaking of acts of Congress, Attorney General Brownell is reported to be in favor of a bill to legalize wire tapping by the FBI and other federal officers in certain serious cases and under strict supervision. The cases mentioned are those involving espionage, sabotage, and other violations affecting the security of the nation. The measure would legalize the use of evidence so obtained for criminal prosecution in federal courts. Under the present federal law, evidence obtained by wire tapping cannot be used in this manner.

Less likely to pass is another bill by Representative Chudoff (D., Pa.) making it unlawful for federal officials to use tape recorders on telephone conversations without permission of the other party to the call. Chudoff's bill, which is limited to the use of tape recorders by federal officials, evidently stems from a personal experience he had with some high officer in the Pentagon a little while ago. Since then, the FCC has issued its requirement for using the "beep" signal on telephone conversation recordings. Under the circumstances, Chudoff's bill is likely to die in committee, as it did in the last session of Congress.

* * *

P.S. As this issue went to press it was announced that President Eisenhower on Mar. 31 nominated Lt. Gov. Ancher Nelsen of Minnesota as REA administrator to succeed Claude Wickard.

The announcement was made while Nelsen was at the White House conferring with the President. Press Secretary James C. Haggerty told newsmen Eisenhower was "very happy" that Mr. Nelsen accepted the $15,000 a year job.

Nelsen, a native of Minnesota of Danish ancestry, has operated a 280-acre farm near Hutchinson in central Minnesota since 1924. He was elected lieutenant governor last November after serving in the state legislature since 1935.

REA Telephone Loan Applications and Allocations by States
(As of February 28, 1953)

State[4]	Applications on Hand as of Feb. 28, 1953	LOAN ALLOCATIONS[1]—CUMULATIVE TOTALS: Number of Borrowers	Total Amount	Pole Miles of Line: Total	To Be Added[2]	Present[3]	Number of Subscribers: Total	To Be Added	Present
United States . .	$95,415,661	234	$112,675,218	90,164	82,293	7,871	304,323	163,784	140,539
Alabama	4,073,490	8	2,719,000	1,803	1,502	301	10,807	6,911	3,896
Arizona	400,000	—	—	—	—	—	—	—	—
Arkansas	1,098,200	4	1,024,000	892	874	18	2,714	2,052	662
California	500,050	2	374,000	195	132	63	1,967	447	1,520
Colorado	1,254,000	1	223,000	132	132	—	401	315	86
Connecticut . . .	—	—	—	—	—	—	—	—	—
Delaware	—	—	—	—	—	—	—	—	—
Florida	80,040	3	1,131,000	435	404	31	2,445	1,985	460
Georgia	2,082,500	12	3,951,000	2,973	2,738	235	10,007	6,700	3,307
Idaho	351,000	1	265,000	226	226	—	483	362	121
Illinois	4,235,000	9	3,042,000	1,760	1,614	146	8,664	3,339	5,325
Indiana	4,083,049	9	10,112,000	4,347	3,441	906	26,986	8,660	18,326
Iowa	1,146,500	5	2,194,000	1,692	1,439	253	6,924	1,164	5,760
Kansas	4,803,424	12	5,473,000	5,336	5,049	287	12,986	3,435	9,551
Kentucky	2,486,400	11	6,684,000	4,482	4,420	62	19,206	12,252	6,954
Louisiana	2,581,425	11	3,957,000	1,511	1,326	185	12,024	6,827	5,197
Maine	315,000	3	570,000	350	338	12	1,442	495	947
Maryland	—	—	—	—	—	—	—	—	—
Massachusetts . .	125,000	1	40,000	42	42	—	605	202	403
Michigan	1,715,200	5	1,603,000	568	501	67	4,556	2,630	1,926
Minnesota	5,639,545	16	6,911,000	6,351	5,198	1,153	20,330	5,263	15,067
Mississippi	2,084,000	4	1,385,000	976	864	112	4,638	3,401	1,237
Missouri	6,382,072	6	3,422,000	3,429	2,378	1,051	12,582	3,240	9,342
Montana	3,129,000	3	3,942,000	6,262	6,189	73	5,368	4,713	655
Nebraska	636,000	—	—	—	—	—	—	—	—
Nevada	138,000	1	242,000	113	93	20	632	149	483
New Hampshire	—	—	—	—	—	—	—	—	—
New Jersey	—	1	943,000	316	161	155	3,146	1,622	1,524
New Mexico . . .	2,424,850	3	2,124,000	2,737	2,737	—	3,498	3,336	162
New York	750,000	2	481,000	177	142	35	1,469	333	1,136
North Carolina .	3,696,416	8	4,706,000	2,776	2,681	95	16,064	11,478	4,586
North Dakota . .	6,684,700	6	5,560,000	6,862	6,389	473	9,374	6,262	3,112
Ohio	425,000	2	370,000	293	293	—	1,038	758	280
Oklahoma	4,553,000	2	897,000	792	776	16	2,137	1,281	856
Oregon	112,000	4	1,762,000	867	867	—	4,756	2,901	1,855
Pennsylvania . .	825,000	2	247,000	172	107	65	975	303	672
Rhode Island . .	—	—	—	—	—	—	—	—	—
South Carolina .	932,950	12	5,386,000	3,746	3,461	285	12,106	8,853	3,253
South Dakota . .	4,147,520	2	1,763,000	1,720	1,711	9	3,774	1,292	2,482
Tennessee	5,261,785	15	5,169,000	3,147	3,055	92	16,047	11,277	4,770
Texas	10,330,856	22	15,202,218	16,943	16,701	242	33,094	26,998	6,096
Utah	529,000	4	1,565,000	1,080	925	155	4,918	3,241	1,677
Vermont	—	—	—	—	—	—	—	—	—
Virginia	1,104,800	5	1,344,000	962	804	158	3,541	2,736	805
Washington . . .	652,500	5	3,234,000	2,022	987	1,035	15,214	3,489	11,725
West Virginia . .	849,040	3	599,000	202	190	12	1,754	1,037	717
Wisconsin	1,725,205	8	1,967,000	1,431	1,377	54	5,315	1,811	3,504
Wyoming	988,300	1	92,000	44	29	15	336	234	102
Alaska	83,844	—	—	—	—	—	—	—	—
Virgin Islands . .	—	—	—	—	—	—	—	—	—

[1] Cumulative net loan allocations (rescissions deducted). Includes amounts not yet under loan contract.

[2] Includes pole miles of line to be constructed or rebuilt.

[3] Excludes pole miles of line to be rebuilt.

[4] State figures represent data for REA borrowers incorporated within the state.

As of Feb. 28, 1953, REA had allocated $35,858,218 to 122 commercial companies and $76,817,000 to 112 cooperatives. According to REA the 122 commercial companies will rebuild 3,918 miles and add 18,653 miles of pole line; and will serve 65,360 present and 57,310 new subscribers. The 112 cooperatives will rebuild 3,953 miles and add 63,640 miles of pole line; and will serve 75,179 present and 106,474 new subscribers. Same data as of Dec. 31, 1952, published on page 27 of the Feb. 14 issue of TELEPHONY.

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

THE WRITER was recently privileged to hear a most interesting speech titled "Private Enterprise" by Vivian Kellems, president of the Kellems Co., Stonington, Conn., maker of cable grips. This speech was given before the Washington and Baltimore sections of the American Institute of Electrical Engineers on its 50th anniversary. Miss Kellems was the first woman ever to address this group of engineers.

At the request of the chairman, Miss Kellems prefaced her regular speech with a few remarks on cable grips, how she got the idea of manufacturing and selling them, and then started her own business. In her opinion, we in the communications and power industry do not do a very good public relations job, because the world under our feet contains marvels in distribution systems that the public knows little about. She stated further that it isn't necessary to worry about atomic bombs when a few well-placed explosives could put these underground distribution systems out of commission and paralyze large cities.

• • •

We have received some reports of lightweight aerial cables developing trouble because of swaying and vibration in high winds in certain sections of the country. It is also understood that it has proved necessary in some cases to anchor long spans in the center or install vibration dampers on the strand to prevent vibration troubles.

We should appreciate hearing from any of our readers who have had trouble of this type.

• • •

It has been said that all education does today is develop memory at the expense of the imagination.

• • •

Frequently, we receive letters from operating people who are considering the use of army field wire to run lines and drops in their exchange plants. Some of these men state that this is new wire and because it is reasonably priced they are considering its use in lieu of regulation type drop wire.

We have repeatedly stated in this column and elsewhere that army field wire was not designed for permanent installation in the telephone plant. In our opinion, a better investment from both a cost and service standpoint would be the use of regular drop wire, in every case.

• • •

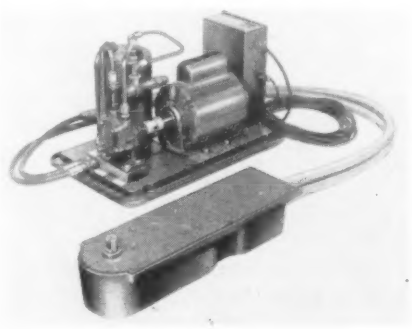
It has been said that an old timer can remember when saloons had false fronts outside—instead of lined up at the bar.

• • •

An electrically operated hydraulic door control of new design should serve a useful purpose in the telephone industry. It is believed that this device may be used to advantage in business offices and switchboard rooms.

This automatic Invisible Dor-Man opens any type of door (glass, wood, or metal) the instant a person steps on the ¼-inch vinylite carpet leading through the doorway. The door remains open until the person has walked through, and then closes itself with a two-speed action. The initial closing speed is greatly reduced during the last few inches of closing to assure completely noiseless operation. These closing speeds are adjustable.

This new device consists principally of the door control mechanism which is concealed in the floor, and the hydraulic power unit, equipped with a ½-horsepower motor. Because of the compactness and convenient size of the power unit, it can easily be hidden from view at any distance from the door.



No alterations are required to apply this device to any standard stock door. No special devices are placed in the head jamb. The operating units are all completely concealed. In case of a power failure, the door will operate manually, without locking or jamming.

• • •

An insulated test clip of a new design, recently placed on the market, should be of interest to the telephone field.

The thin plastic insulation covers the entire clip, including the nose or tip, without the bulkiness of rubber boots or tape. These clips may also be used in pairs as a source of power for equipment under test, without the danger of a short circuit due to the clips contacting each other or the components.

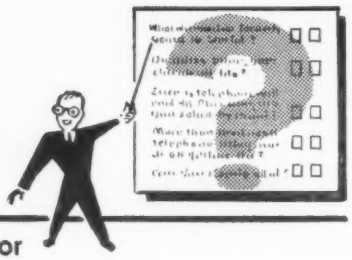
A highly efficient, nylon insulation conforms to the shape of the metal clip, thus permitting the same degree of flexibility and ease of handling as bare metal clips. A nylon sleeve is threaded to the clip for easy connection to the leads. The terminals are provided for either a soldered or screw terminal connections. Strain relief is provided by the use of wire clamps.

• • •

The writer was recently privileged to spend a day at the Bell Laboratories in New York City for the purpose of discussing transposition systems and the protection of outside plant. These trips always prove pleasant as well as instructive and we never cease to marvel at the wealth of valuable information, available for instant use at all times. No matter how complex or baffling the problem, someone can always come up with a logical answer.

After talking to these engineers, one can readily understand why this country has the world's best communication system.

PLANT MAN'S QUIZ



by RAY BLAIN, Technical Editor

Q. We are planning to do a cable extension job in our small city and we expect to use joint construction with the power company on at least half the project. The problem of proper grounding is now confronting us. The power circuits are so heavily fused that there is actually little, if any, protection on their lines. When the power wires fall on our cable, these wires—in nearly every case—burn the cable and strand in two. The last time we had trouble due to a power cross, it burned holes in the sheath for a distance of three blocks. We have two thoughts on the type of construction to use as follows:

(1) Ground the messenger and cable as often as possible. Bond the cable and strand every few spans. Do not place strain insulators in the guys.

(2) Do not ground the cable and strand. Place strain insulators in all guys. Ground the cable only at points where aerial goes underground.

We would appreciate your opinion as to which type of construction will prove more advantageous for our use.

A. Your problem is one that has proved highly controversial among telephone engineers in the past. However, the ideas of the majority have changed greatly during the past few years and we are of the opinion that your No. 1 plan is the better of the two you submitted. In other words, ground the cable and omit strain insulators except in a few special cases. Lashed cable is generally considered a good bond between the lead sheath and the strand.

In the first place, the purpose of grounding guys or placing strain insulators in them is to protect pedestrians and workmen from guys which may be in accidental contact with power wires. Most present-day engineers are now of the opinion that if a guy is well grounded and a power wire falls on it, it will kick the circuit breaker in the power station and will not injure a pedestrian even if he might be in contact with the guy at the time. On the other hand, if the cable and guy are insulated or not properly grounded, there may be high resistance to ground and contact with a power wire would not kick a circuit breaker or blow a fuse, but the power wire would probably remain in contact for a considerable period and pass a large current through the high resistance to ground. This could develop a highly serious condition in some cases.

In general, the modern thinking is that all guys, even on joint construction should be grounded, except in the following cases:

(1) Where the guy crosses over power circuits which carry a voltage between 300 and 15,000. Guys of this type should be insulated by the use of one or two strain insulators.

(2) Where the guy is exposed to a trolley feeder.

(3) Where insulation is considered necessary because of electrolysis reasons.

• • •

Q. What is considered the approved practice of leaving telephones in vacant houses for a certain length of time after the telephone customer moves out?

A. To the best of our knowledge this practice differs in various localities. Livable houses are not left vacant for long periods these days and everyone wants a telephone so for this reason some labor will be saved by not removing the instrument when the old customer moves out.

On the other hand, some operating companies prefer to remove the instrument, clean and overhaul it before the new customer moves in. Then, also, the new customer frequently will require the instrument in a different location from the old so that a visit and a move order will be required with either system.

In our opinion, this is a question that must be worked out in each locality and will depend to a great extent upon local conditions.

"—BUT YOU MUST ADMIT IT LOOKS NICE AND IT SAVES THE PRICE OF A POLE."

• • •

Q. We have a large lot of magneto telephone parts on hand that we wish to assemble into complete telephones for use on open wire rural lines. Can you recommend a circuit to use that will provide good transmission?

A. We hesitate to recommend a circuit for the purpose you state and give you any assurance that it will provide a good trade of transmission. You did not mention the type or manufacturer of the parts you have, but it is assumed that they are mixed. Old telephones, in general, are not satisfactory and we seriously doubt if you can overhaul them so that they will furnish a good grade of service. Nor is it considered desirable to mix parts of various manufacture in one telephone set.

If you should attempt to rebuild these old telephones there is a possibility that you would be required to purchase new transmitters and receivers as well as new hand generators. It is entirely possible that this would cost nearly as much as new telephones after you consider your labor charge and you would still have old telephones.

It is suggested that you seriously consider the purchase of new telephones and junk the old parts.

• • •

Q. Will it be possible to sag new open wire lines by the use of a dynamometer? If so, what type would you recommend for this purpose?

A. The dynamometer is considered the most accurate method of sagging wire if it is properly used. Sag tables can be obtained on all types of wire for this purpose. A small-sized direct-reading dynamometer is considered best suited for wire sagging. The 500-pound size will, in general, prove the best for this need. An instrument of this type, equipped with a shatterproof crystal to protect the pointer on the dial, can be purchased from your supply house.

V V

"Tax laws will have to recognize technological change and the vital importance of encouraging it. We shall have to find ways of increasing available venture capital. Labor as well as management will have to adjust to changing conditions."—JAMES R. KILLIAN JR., *president, Massachusetts Institute of Technology.*

The OPERATOR'S CORNER

by MAYME WORKMAN, Traffic Editor

SWITCHBOARD CORDS are still an important part of the equipment used in establishing telephone connections despite the development of dial equipment. The writer has just read an interesting article on this subject which she is happy to pass on to you. The article is a humorous piece of verse, yet it contains much food for thought on the proper handling of switchboard cords. It appeared in the Bell Telephone Co. of Canada magazine, *The Blue Bell*, and is entitled, "Which Are You—Kate or Sue?"

"Have you noticed in your office,
As you've glanced around the boards,
That the difference is astounding
In the handling of cords?

Here's one girl (we'll call her Susan),
And another (let's say Kate);
Now step back and watch the difference
In the way they operate.

First of all, please note their posture.
Susan sits quite straight and firm,
But poor Katy looks so bothered,
All she does is twist and squirm.

Susan sees a signal waiting,
So she takes the nearest cord,
Using just the first two fingers
To insert it in the board.

Katy also sees the signal
But her actions are so slow,
By the time she goes to take it,
It is gone. My, what a blow!

Ah, she finally gets a signal.
(Come now, girls, we mustn't jest!)
But she's on a busy circuit:
Katy just forgot to test.

Susan's cord is lifted gently
As she tests upon an angle,
But our Katy looks as if she was
Intent to maim or strangle.

Some poor operator still hears
Katy ringing in her ear,
Many seconds after Katy's passed
Her order, loud and clear.

While the conversation's flowing,
Susan takes another call;
Silly Katy sits and watches
All the shadows on the wall.

Then she takes her cords and twists them
Till they're nearly bent in half,
And she madly twirls her dial
With a foolish little laugh.

Now the calls are both completed;
Susan sees the disconnect,
So she stamps the ticket promptly
In a manner quite correct.

Then her cords are disconnected
And restored to proper place.
All accomplished very smoothly
With an air of ease and grace.

But poor Katy's in a dither
And because of her great haste,
She's released the wrong connection
For her cords were never traced.

As we cannot stay and watch her,
We must leave her to her fate.
Do, from now on, make an effort
To be more like Sue—not Kate!"

Naturally, we want to be like Sue, not Kate, but to do this we must emulate Sue's example in handling switchboard equipment. Operators who have worked at a switchboard for many years recognize that the proper manner of handling cords is also the simplest and most effectual manner. The work can be performed more readily, with less effort, and with no ill effects on the equipment.

Chief operators and supervisors are proud of switchboard operators who do a smooth job and who handle their keys, cords, and other switchboard equipment in the prescribed manner.

In the days when the writer was making periodic visits to telephone exchanges, it was not uncommon for a chief operator to state, "I wish you would observe the work of the operator on position (No.). She does a beautiful job of handling her cords and is careful in taking a busy test. I have never known of an instance when she established a connection to a busy line. In taking down her connections, she always traces her cords with her hand and follows them to the keyshelf. She works smoothly and you are not aware of the number of calls she is answering until you check her pegcount. I'm mighty proud of that girl and wish I had many more just like her!"

Yes, chief operators and supervisors *are* proud of operators who do a smooth job and rightly so, because by handling cords in the proper manner, operators avoid cut-offs, as well as wear and tear on the equipment.

The writer shall never forget a certain girl she instructed in an Illinois exchange. In addition to her beautiful voice and pleasing manner in dealing with customers, her cord handling was as nearly perfect as humanly possible. The exchange manager must have observed her good qualities, too, for she later became his bride.

Proper handling of equipment requires knowledge, a desire to do an effective job, and persistent effort, all of which are known factors to Sue, and yourself.

Traffic Questions

(1) When should the toll operator at once ask for the calling number?

(2) If a customer does not clearly indicate whether he is placing a new call or giving an order concerning a call already filed, what question should be asked by the operator?

(3) How should an operator request a number from Directory or Information operator?

(4) How should the operator proceed if there is no trunk to or toward the calling office?

(5) On an outward call if the calling line is busy, how often should you make an attempt to secure the line?

Answers are presented on page 37.

V V

AT&T's New Microwave Link Brings TV to Springfield, Mass.

American Telephone & Telegraph Co. on Mar. 19 announced the opening of a new microwave link that permits network TV programs to be transmitted to Springfield, Mass.

Connection to the network was made from the New York-Boston radio-relay system at an intermediate microwave station. AT&T reported the addition means network programs are now available to 124 stations in 79 U. S. cities.

V V

>> It has been said that a job becomes work only when you worry about it.

Trouble Clearing

Planning Preventive Maintenance

By L. N. MARTIN, Virginia, Ill.

PREVENTIVE MAINTENANCE is often called "Routine Maintenance" and the individual items which make up a preventive maintenance program are called "routines." In our opinion this is a somewhat unfortunate terminology because the word "routine" implies something that is done over and over again in the same way at regular intervals until it becomes habitual and is done without thought. Indeed that was at one time the prevailing idea in regard to preventive maintenance, especially in the central office. It was thought that a set of routines and their frequencies could be devised for a given office and if these routines were faithfully carried out, they would automatically keep that office in first class condition. This might even be true if the routines were intensive enough and the intervals between routines were short enough, but what about the cost?

We now know that preventive maintenance is a matter that requires thoughtful planning based on known facts and up-to-the-minute information. It must also be carried out in a thoughtful manner and those in charge must be alert to changed conditions which would require a change in the plans.

How far ahead should preventive maintenance be programmed? It has been found that one year is too far ahead to plan the details of preventive maintenance. On the other hand one month would involve too much time for the planning and might result in the planning time becoming too large a percentage of the time required for the actual work. Some companies may come to different conclusions but many of the larger companies have decided that three months or one calendar quarter is the best period to be covered by a preventive maintenance program. Note, however, that this has nothing to do with the frequency of any individual routine. One routine might be completed weekly during the quarter while another would be scheduled in alternate quarters or even less frequently.

This quarterly plan operates as follows: Toward the end of each calendar quarter all concerned meet to prepare the program for the next quarter. The trouble records are studied to determine where preventive efforts are most needed. Other things are considered such as known bad conditions in various parts of the plant. The results of previous programs are studied to determine the probable effectiveness and probable cost of any proposed routine. The new program must also be balanced with the available man power; or additional man power may be arranged for, if that seems advisable.

Notice that the Trouble Record (which has been our theme throughout this series of articles) is an indispensable aid when the time comes to prepare a program of preventive maintenance. Also, adequate records must be kept of the preventive maintenance work itself.

PART 27. The preceding article in this series appeared in the Mar. 21 issue, p. 11.

However, as we have so often stated in this series, the large exchange or the large company will require comprehensive and somewhat complex records while the very small company may use a quite simple record. We will first discuss some of the records that a large office would use.

It requires considerable research work to set up a routine. Let us suppose that we are setting up a routine to test all of the supervisory relays in a manual office and to correct all of the defects disclosed by the tests.

We must look up the correct current flow values that have been engineered for the supervisory relays in this particular office. Then we must find the mechanical adjustment data and the latest method of cleaning the contacts. There may be other information that we have found to be necessary when performing this particular routine in this office.

Having obtained this information from a number of different sources, it should not be necessary to repeat this work each time this routine is used. A form is therefore provided for recording this information.

In a large office this may be a card to be filed in a drawer, while a smaller office may use 8½x11 sheets to be filed in a loose leaf binder. This form has blanks for recording all data required for this routine. However, if some of the instructions are too long to be written in full on the form, a reference notation may be entered on the card showing just where the required information may be found. An estimate of the time required to complete the routine should be made and the complete job divided into units that can be completed in one shift. A unit might be one, two, or three positions. This information should be revised as experience is gained.

Some companies will have blanks on this card for recording the results each time this routine is completed, such as: Per cent of relays not meeting the test; a classification of the trouble found, and the cost of the routine in man-hours. Some would also enter the monthly trouble results on this portion of the plant so that the effect of the routine on the trouble may be conveniently studied.

We now have on one card (or sheet) a complete description of this one routine. This record is a time-saver in that the work of compiling it should never have to be repeated. The full title of a routine may involve a dozen or so words, so a serial number is assigned to each routine. In other records it is often possible to refer to the routine by serial number only, thus reducing the amount of writing. The card file (or loose leaf binder) also should be indexed.

The next record we will consider is a Routine Schedule & Progress Chart. This is a form 11x17 or larger. One or more sheets are prepared for each quarter. The Central Office and Outside Plant schedules are on separate sheets (the Central Office Schedule may require several sheets). At the left are spaces for entering (one on each line) the routines to be completed or partly completed during the quarter. The rest of the page is divided into very narrow columns, one for each working day of the quarter, with heavier lines separating the weeks. To the right of each routine a horizontal black line is drawn through the days in which work is to be done on that routine.

As the work progresses through the quarter a red line is drawn under the black line each day if that day's schedule is completed. Thus this form, which usually lies on the desk of the foreman, shows at a glance the daily progress of the work.

Another useful form is the Assignment Sheet. Instead of verbal instructions, a workman is handed an assignment sheet which tells him what routine and what unit or units of that routine he is to work on that shift.

This form has blanks for recording the instructions and the data required. The workman may also obtain additional data from the card record of that routine. There are also blanks for the workman's report, which is to be handed back to the supervisor at the end of the shift. A typical report for the supervisory relay routine, which we have been considering, would be: Number of relays tested; number not meeting the test; trouble found, classified as to adjustment, contact trouble, winding trouble, etc.; man hours worked, and equipment and material used.

Now we'll consider the very small company. We feel quite sure that this size company will not wish to use any of the forms which we have described. However, if the management of the very small company has decided upon a preventive maintenance program to be completed during the next three months, it will surely want to put it in writing. It will not want any misunderstanding later as to what was decided upon for that quarter's work.

Perhaps a blank book will serve the purpose but we suggest that this book be used for nothing else. A loose leaf book is also good. Then, at the end of the quarter, everybody will be asking questions. What did we gain by this program? What did it cost us? Was it worth while? The answers to these questions should be written in the book.

Most of the preventive maintenance routines are scheduled when and if there is an actual need for them, as determined by the quarterly study which is made in connection with the preparation of the quarterly program. However, there are certain routines that are scheduled at regular intervals year after year. (Even in this case the frequencies may be revised from time to time.) These routines may be called "safety routines."

One of these is the inspection and test of the fire-fighting equipment. Here there is no trouble record as this equipment may not be used for many years. For that very reason inspections and tests at regular intervals are essential. It is customary to schedule this routine during the annual "Fire Prevention Week," but some items will require more frequent inspections.

The power plant, i.e., battery, charging machines or rectifiers, ringing machines, and interrupters should have a regular schedule of daily, weekly and monthly checks, tests and inspections, since this equipment can produce a total office failure. *These inspections are more necessary now than ever before.* This may seem a strange statement in view of the many improvements that have been made in the power plant equipment in recent years, but we will tell you why.

Some years ago batteries were operated by the charge-discharge method. The charge was started at 8 a.m. each day except Sunday.

The power man read the pilot cell, added water, and took the cover off the motor-generator set. He inspected the brushes as he lowered them, checked the oil level in the bearings and started the machine. He adjusted the charging rate at least every half hour and checked the generator for arcing at the brushes or overheating. Toward noon he visited the battery room many times to see if the battery was "up."

Saturday was overcharge day (now called "equalizing charge"). All cells

"He says it's dangerous to be standing on the road with reckless drivers zooming by."

were watered and both specific gravity and voltage read. The battery was watched to determine when the 15-minute readings should start and after that the power man was in the battery room every 15 minutes until the battery was "up." This often involved working overtime without supper (no time-and-a-half in those days, either). When the charge was finally completed each cell was again read—both specific gravity and voltage. *With such constant coverage there was little chance for a serious case of trouble to slip up on the power man.*

Now let us look at the picture today. The battery is operated by the Automatic Continuous Float method. The rectifiers and/or motor generator sets are automatically regulated, and even started and stopped as required. The ringing machines and interrupters shift automatically if the power goes off. The equalizing charge is given only once a year if at all. Except in the largest offices the position of power man has been discontinued. The power plant could be left to operate itself for six months and *if nothing happened,* it would still be operating perfectly? "If nothing happened" constitutes the danger. *With so little human supervision and inspection, trouble may develop and grow until a sudden complete office failure results.* To prevent such a calamity, a strict schedule of inspections and tests should be maintained.

Cords, plugs and operators' sets should be routined at regular intervals. These are short-lived parts, so the routines should be frequent enough to make a case of reported trouble on these items very rare.

There are many other items that come under the heading Safety Routines. These may be placed on separate schedule and progress chart sheets. Some companies use a form with its left end detachable so that it may be reused with a new progress sheet each quarter.

In a dial office the situation is somewhat different from that in a manual office. A subscriber may report a case of trouble and nothing can be found on his line to account for it. It was probably due to some defect in the central office equipment, but where? It could be in any one of a large number of relays and switches.

When several reports of this type are received it is quite certain that some relay or some switch is not functioning properly. The only remedy is to routine *all* of the equipment that could have been involved.

In general, a dial office will require more intensive and more frequent routines than a manual office. These routines will differ with the type and make of the equipment. Special test sets and test circuits are used for this purpose. However this is too large a subject to start in this article.

(To Be Continued.)

V V

"On the surface the welfare state philosophy looks attractive. It seems to offer something for nothing, to make life easier for everyone without causing pain or discomfort to anyone. But this whole philosophy is based on one major false premise . . . that government is an inexhaustible financial horn of plenty. The truth is, of course, that government creates no wealth and derives its revenues either from taxing its citizens or from borrowing." — WILLIAM HENRY CHAMBERLIN, *columnist.*

V V

About 65 per cent of the households in the United States had telephone service at the end of 1951, an increase of 18 per cent since the end of World War II.

48th Texas Convention Features Aid to Small Companies

By H. D. FARGO Jr.

A RECORD attendance (547) and a well-balanced program summarize the 48th annual meeting of the Texas Telephone Association held on Mar. 9 and 10 at Dallas. Special emphasis was laid on helping small companies. Pamphlets were distributed which read:

"We want to assist every small telephone company in Texas that is interested in an improvement program.

"In every section of the state we have committees actively at work . . . (There are six such districts in the state, each with a local chairman and from two to six members.) They are designed to serve you and to help you in every way possible.

"If you will contact them, members of your neighborhood committee will be glad to visit your exchange and advise or help you with any of your problems."

There was a special room provided by the Small Company Committee for conferences during the convention. Also one entire afternoon was devoted to a discussion of the committee's program for aiding small companies, under the chairmanship of E. H. Danner, Sherman.

President Roy Autry gave the opening convention address. Declaring that the most serious problem to be faced in the future will be in the field of financing, he forecast a need for new money by Independent companies totaling about $172,500,000 between now and 1962. By that date he estimated there will be 690,000 Independent telephones in Texas and 9,100 employes, assuming a growth similar to that since 1943.

The need of adequate rates was covered by Mr. Autry and he referred to the recent Ohio Supreme Court ruling in which the Ohio Public Utilities Commission was prevented from making a rate increase contingent upon service improvements and which he termed "most significant" (TELEPHONY, Feb. 7, p. 20); also he referred to the verdict handed down by the Illinois Supreme Court on Jan. 22 which held that the Illinois Commerce Commission should have considered "reproduction cost new" method in arriving at Illinois Bell Telephone Co.'s property value and rate of return, instead of basing the return on "bare cost of capital" (TELEPHONY, Feb. 14, p. 21).

On the subject of taxes, the speaker quoted the resolution adopted by the NARUC last November, relating to repealing the telephone excise tax and doing away with discrimination against non-railroad utilities with respect to federal absorption of costs of moving facilities in connection with federal-aid highway construction. He continued:

"While no one can forecast with certainty the extent and date on which the defense program will begin to taper off, it will be well within the next ten-year period, and probably one of the major items to take up the slack of unemployment and material production will be the intensive construction and reconstruction of highways. It is with this thought in mind that I urge that the management of our Independent companies and our association, as such, crystallize a definite program for legislation to cover reimbursement for the expense of relocation facilities incidental to federal highway construction."

"Economic Conditions" was the subject of an excellent address by Dr. Arthur A. Smith, vice president, First National Bank, Dallas. He sounded a warning that the present level of business activity is supported to a large extent by military expenditures. When these fall off as they are certain to do, there will be need for adjustments and advance preparations for this situation should be studied now. Dr. Smith's remarks were thought-provoking and most timely.

J. B. Haley, former Texas association secretary and now telephone consultant of REA, made his talk on "What REA Is Doing for Rural Communications" and said at the outset

Texas Pioneers Meet

The annual meeting of the Texas Chapter of the Independent Telephone Pioneer Association was held on Mar. 10 during the Texas Telephone Association convention.

Following the chapter business meeting, Dr. Neal Bowman of New York City gave a talk. The following chapter directors and officers were elected.

Directors: **Oscar Burton of Tyler; Pam D. Grinstead of Kerrville; Harry Hammond of Brownwood; Jeanette Hensley of Santa Anna; Don Hunsaker of San Angelo; J. B. Lee of Tomball; C. G. Mac Lelland of Brownwood; S. H. Shutt of Sherman; Guy Smelser of Bogata; D. E. Van Ness of Dallas, and W. G. Winters, of Houston.**

Officers: **Mr. Hammond, president; Mr. Grinstead, vice president; Jeannette Hensley, secretary, and Mr. Mac Lelland, treasurer.**

"I want to emphasize again that REA is not in the telephone business, and doesn't want to be. No telephone facilities are built, owned or operated by REA. Our function is to help people do things they cannot do by themselves."

Mr. Haley stated that of the 235 REA telephone borrowers, 123 are commercial telephone companies, with loans totaling over 35 million dollars. The average loan to co-ops is twice as large as the average loan to commercial companies. Mr. Haley explained it as follows:

". . . the co-op is starting from scratch. It needs more money to do the same job—to serve the same area. The company already has some of the facilities necessary for an area-coverage job. All it needs is money to finish up the odd corners and rehabilitate a few spots of too-long-deferred maintenance.

"This is reflected in the difference in our figures for subscribers to be served. The larger part of those to be served by co-ops are new subscribers. The larger part of those to be served by the established companies are to have improved, rather than initial, service.

"All right, you say: If REA is so much concerned with the welfare of the Independents, how come so many co-ops? How about the fact that co-ops are buying out little companies?

"Well, there are so many co-ops because the co-ops are willing to do the job. Look at Texas—22 borrowers, only one of them a profit company. Then look at much smaller Louisiana, your neighbor. Eleven borrowers, every one of them an Independent. Our policy is exactly the same in both states; the same people are directing the program; and to some extent the same field people help work up applications. No, the difference is not in REA."

Mr. Danner as chairman of the convention's Small Company Committee program, first called on W. C. Henry, Bellevue, O., who as a director of the United States Independent Telephone Association and chairman of the USITA Committee on Problems of Small Companies, discussed the subject from the national level. He reviewed the telephone amendment to the REA act, the revised REA loan agreement and the steps leading to the establishment of a national and 14 USITA regional small company committees. A survey was made last year and it indicated that out of 4,224 Independent telephone companies having less than 500 stations, 504 were distress cases and an additional 1,098 companies were potential distress cases, he said.

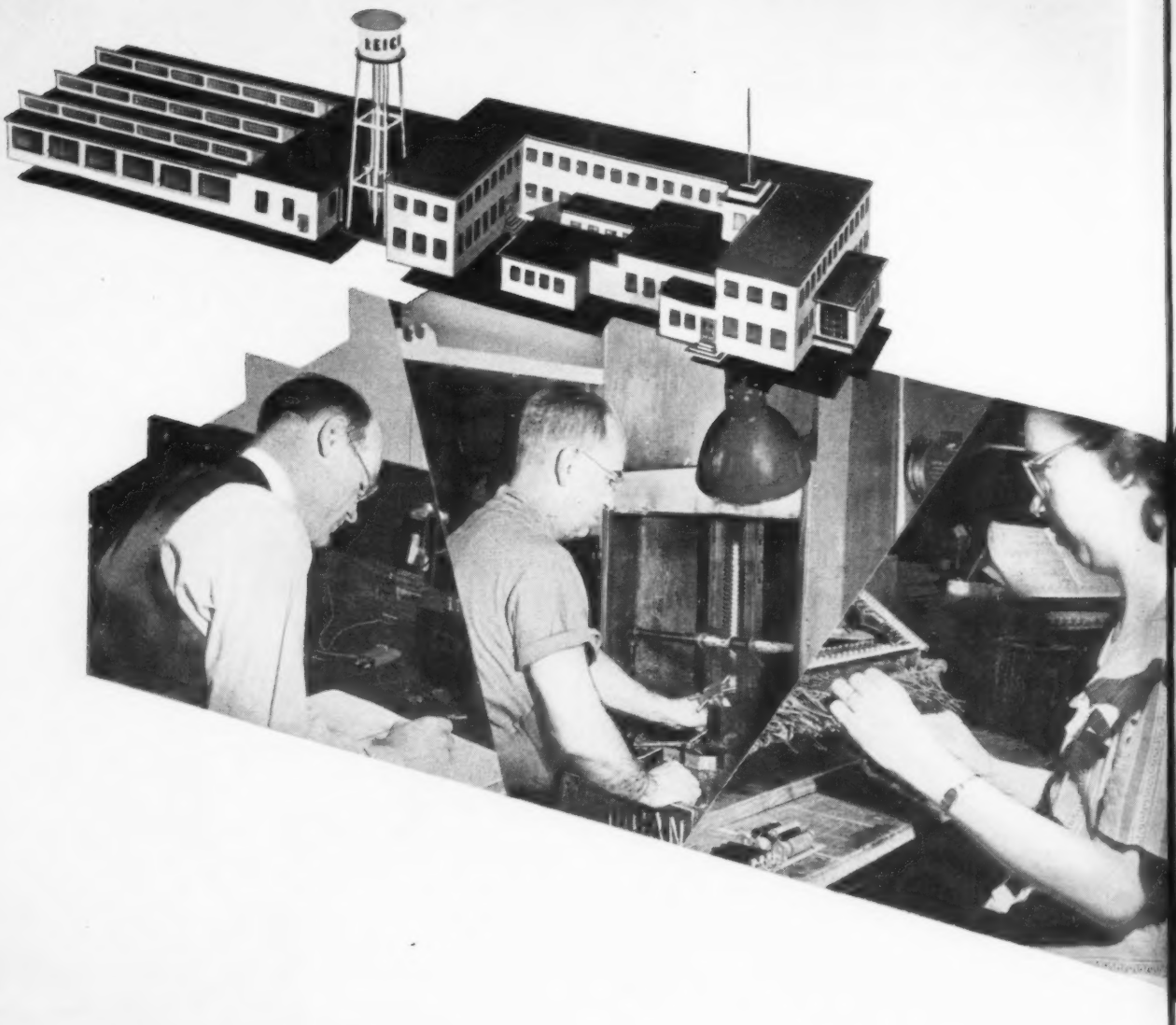
"Together, the distress or potential distress cases represent almost 40 per cent of the companies in the Independent segment with less than 500 stations. The primary causes of distress appear, in their order of acuteness, to be, inadequate finances, depreciated condition of

(Please turn to page 22)

Directors and officers of the Texas Telephone Association shown are, left to right, seated: SAM SHUTT of Austin, acting executive secretary; DON HUNSAKER of San Angelo, first vice president; ROY AUTRY of Dallas, retiring president; W. G. WINTERS of Houston, president, and FABIAN BEARDEN of Baird. Standing, left to right, are: KEITH SCHULER of Corsicana; OSCAR BURTON of Tyler; D. T. STRICKLAND of Brownwood; A. L. ROBB of Electra; D. H. COMPARETTE JR. of Kerrville; W. L. PREHN of Dallas; T. A. SINGER (in front of Mr. Prehn) of Dimmitt; J. T. CHAMBERS of Tenaha; S. W. TEAS of Floresville; GUY SMELSER of Bogata; E. H. DANNER of Sherman; CLIFF DOWD of Hawkins and CHARLES HENDRIX of Brazoria. Directors not in photo: D. G. Gardner Jr. of Nocona, second vice president; P. D. Grinstead of Kerrville, treasurer; George M. Johnson of Santa Anna; Ben Smith of Dallas; Marion Clay of Lufkin, and Ralph Sparks of Pecos.

Delegates to the Texas Convention photographed in the headquarters room of the association's Small Company Problems Committee.

Three of the many posters which were displayed in the headquarters room of the Small Company Problems Committee of the Texas association during its convention.



It's important to you - - - - - - - - - what kind of people make your telephone equipment. For it doesn't matter how correct the design, how good the tools . . . if careless hands can spoil the finished product.

Our Leich people are experienced, skilled at their jobs. There's a family spirit of cooperation at our Genoa factory that you'll rarely find in bigger cities.

Our people are genuinely proud of Leich telephones and switchboards, and in their jobs of making them.

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LEICH MAN

Yes, people still do take pride in their work

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

MEMBER OF THE GENERAL TELEPHONE SYSTEM

their present plant, and incompetent management, with a minor number due to unusual growth problems," said Mr. Henry.

The speaker then told of various instances of misunderstanding between the commercial telephone industry and the REA, which he grouped in the following way:

(1) The question of territory or whose responsibility it is for the provision of telephone service in a definite area;
(2) Irresponsible promises or offers of toll free service to adjacent commercial exchanges without agreements with the commercial company;
(3) What appears to us to be a calculated program of promoting or incubation of telephone cooperatives in areas where there is no appreciable demand, and
(4) A program of purchasing Independent telephone companies at prices

Left to right: Col. W. C. HENRY, of Bellevue, O., chairman of the USITA Committee on Problems of Small Companies; E. H. DANNER, of Sherman, and J. C. PAXTON of Dallas.

in excess of their fair value for the purpose of securing their territory as a nucleus for the formation of a telephone cooperative.

Mr. Henry continued:

"Conferences were held with the REA administrator and top members of his staff last September, at which we forcefully presented our industry's viewpoint that the greatest number of telephones could be placed on farms if the REA would cooperate with the existing commercial companies where these companies were willing to undertake the provision of adequate service.

"After several discussions, Mr. Wickard accepted this premise, and agreement was reached that a frank discussion of our differences in joint meetings would be advantageous. The first joint regional meeting with REA representatives was held at Charlotte, N. C., on Jan. 5, 1953. A second meeting is scheduled to be held here . . . this week, for this area.

"As a result of discussions held with Mr. Wickard and his staff, since the first joint meeting in North Carolina, he has further agreed and has so instructed his field representatives, that local differences with commercial telephone companies can best be resolved through joint meetings of the local people. He has instructed his representatives to advise local groups considering the forming of new telephone organizations to first communicate with the officials of the existing telephone companies in the area.

"REA field representatives have been authorized by Mr. Wickard, under date of Feb. 17, 1953, to meet with representatives of the USITA Regional Small Company Committees, in their efforts to assist small telephone companies in their financial, management and operating problems. It is my belief that this plan for cooperation between representatives of the REA and the Independent industry can be of benefit to both organizations in meeting our obligation to provide satisfactory telephone service to the rural areas of this country."

Left to right: MARION CLAY of Lufkin; CLIFF DOWD of Hawkins; CHARLES HENDRIX of Brazoria; GUY SMELSER of Bogata, and W. G. WINTERS of Houston.

Next Mr. Danner called on Mr. Autry, who as chairman of the USITA Regional Small Company Committee, gave an outline of the regional organization and its achievements. This was followed by an introduction of the members, district chairmen and Bell representatives of the state small company committee. With the help of many called to testify regarding their experiences, Mr. Danner laid before the convention a comprehensive program calculated to furnish effective aid to small companies.

Left to right: FRANK BARNES of Rock Hill, S. C., member of USITA Committee on Problems of Small Companies; GUY SMELSER of Bogata and CECIL HARVEY of San Antonio, members of Texas association Committee on Small Company Problems.

It consisted of an outline of objectives, problems faced, and a full discussion of such matters as plant accounting records and financing. He listed as avenues for savings: Microfilming of toll tickets, joint construction crews, improved directory revenue and untapped paystation income. A worthwhile feature of this session was the participation of the audience. Many telephone men related their experiences on numerous subjects covered, particularly in the field of new financing.

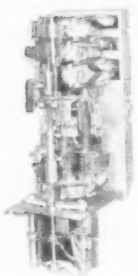
On the second day of the convention, President Autry opened the meeting by introducing Joseph F. Leopold, Dallas, who spoke on "Our Federal Income Tax-Free Competitors." He declared that from 1½ to 2 billion tax dollars annually could be added to the federal government income (and accordingly reduced on other tax bills) if tax-free co-ops, and other non-taxed groups, were taxed. He urged that all telephone men push this matter with their Congressmen.

Edwin M. Blakeslee, president of the United States Independent Telephone Association, reviewed the several legislative measures to which the national association is giving attention—all of prime significance to the best interests of operating companies. He then summarized the two years of work that recently resulted in a net increase in toll compensation for the Independent industry of approximately 18 million dollars.

Mr. Blakeslee said the cost studies indicate that there will be situations

(Please turn to page 40)

y" with STROWGER AUTOMATIC!



When Nationwide Toll Dialing comes to you with its "2-letter, 5-figure" numbering, your *Strowger Automatic* exchange will be ready! A special "digit-absorbing" 1st selector switch will tie your equipment into the "2-5" system perfectly.

If you're converting to automatic and want "2-5" numbering, just specify "digit-absorbing" 1st selectors in your order.

If you now have Strowger Automatic, you will normally be able to adapt to "2-5" by simply removing your present 1st selectors, and jacking "digit-absorbing" switches in their places. (No shelf, bank, or wiring changes.) Then, as you require, you can *re-use* your present 1st selectors as 2nd or 3rd selectors!

With Nationwide Toll Dialing coming, telephone men know that their safest investment is Strowger Automatic. Its highly flexible circuits make changing of trunking schemes an exceptionally easy matter and, it meets all supervisory and impulsing requirements. Let us help you with your plans. Write us today!

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Maintenance Testing Equipment

By JOHN A. BRACKEN

IN ORDER to find the impedance offered to alternating current (ac) flowing in a telephone circuit and associated equipment, it is necessary to obtain the total opposition in the circuit due to: (1) Resistance, or (2) capacitance, called "capacitive reactance" and inductance, called "inductive reactance."

The unit of capacitance is the "farad"; smaller units, the "microfarad" and the "micro-microfarad," are the fractional units used in practice. The unit of inductance is the "henry"; fractional units are the "millihenry" and "microhenry."

An additional factor involved in determining impedance, is the value of the ac applied to the circuit, and is referred to as the "effective" value of the current and EMF. This effective value is called the root-mean-square (rms) value; it is defined mathematically as the square root of the mean of the squares of all the instantaneous values of the ac, and is the value indicated by ac ammeters and voltmeters, and when so measured, is approximately 70 per cent of the maximum.

For example, if a 60-cycle alternating current reaches a maximum EMF of 100 volts, the effective value equals .707 × 100 = 70.7 per cent or 70.7 volts.

The maximum value of an ac is the highest value either positive or negative which the current and EMF attain during each cycle. However, owing to the current and EMF being at their maximum value (and average value also) only for an instant, it is apparent that neither the maximum or average value can be considered as the effective value.

Fig. 1 shows the relation between the average, effective and maximum values of 90-volt, 20-cycle ac ringing power.

Chart I gives the mathematical symbols applicable to finding the impedance of a circuit by means of formulas. Since the impedance (Z) resulting from the inductive reactance (X) and resistance (R) cannot be determined by simply adding the inductive reactance and resistance together, some other means must be applied, as shown by the triangle in *Fig. 2*.

In the right triangle in *Fig. 2*, the horizontal line B is called the base, the vertical line P the perpendicular, and the diagonal line H connecting the base and perpendicular is called the hypotenuse. The length of any of the lines may be found by formula as follows:

$$B = \sqrt{H^2 - P^2} \quad H = \sqrt{B^2 + P^2} \text{ and } P = \sqrt{H^2 - B^2}.$$

Fig. 3 shows the relation existing between the values of the three quantities Z, X and R in an ac circuit and is similar to the relation between the length B, H and P of the right triangle.

Substituting the letters Z, X and R for the letters H, P and B and placing them in their proper places in the right triangle formulas, the value of any of the factors in ac circuits may be calculated, in which the impedance is represented by H, and is written $Z = \sqrt{R^2 + X^2}$; the inductive reactance by P, and written $X = \sqrt{Z^2 - R^2}$, and the resistance by the base B, written $R = \sqrt{Z^2 - X^2}$.

Example 1. What is the impedance of a trip relay winding having a resistance of 200 ohms and an inductive reactance of 100 ohms?

$Z = \sqrt{R^2 + X^2}$, or (a) $R^2 = 200 \times 200 = 40{,}000$. (b) $X^2 = 100 \times 100 = 10{,}000$. (c) $40{,}000 + 10{,}000 = 50{,}000$. (d) $Z = \sqrt{50{,}000} = 223$ ohms.

Example 2. A telephone receiver has an impedance of 219 ohms and an inductive reactance of 204 ohms. What is its resistance?

$R = \sqrt{Z^2 - X^2}$, or (a) $Z^2 = 219 \times 219 = 47{,}961$. (b) $X^2 = 204 \times 204 = 41{,}616$. (c) $47{,}961 - 41{,}616 = 6{,}345$. (d) $R = \sqrt{6{,}345} = 80$ ohms.

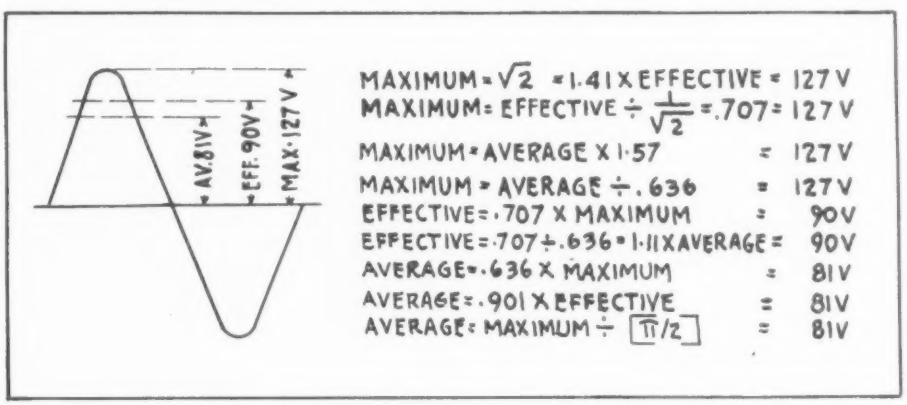

AV. 81V
EFF. 90V
MAX. 127 V
MAXIMUM = √2 = 1.41 X EFFECTIVE = 127 V
MAXIMUM = EFFECTIVE ÷ 1/√2 = .707 = 127 V
MAXIMUM = AVERAGE X 1.57 = 127 V
MAXIMUM = AVERAGE ÷ .636 = 127 V
EFFECTIVE = .707 X MAXIMUM = 90V
EFFECTIVE = .707 ÷ .636 = 1.11 X AVERAGE = 90V
AVERAGE = .636 X MAXIMUM = 81V
AVERAGE = .901 X EFFECTIVE = 81V
AVERAGE = MAXIMUM ÷ [π/2] = 81V

Fig. 1

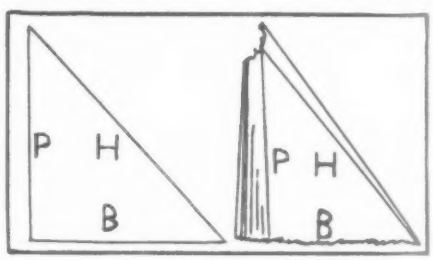


Fig. 2

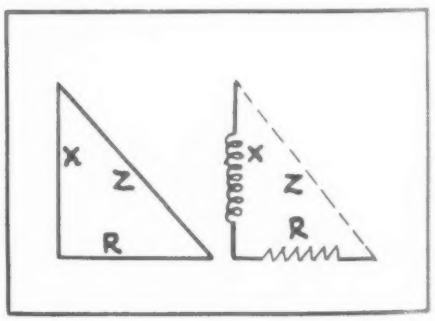


Fig. 3

PART 58. The preceding article in this series appeared in the Feb. 21 issue, p. 21.

Example 3. What is the inductive reactance of a telephone ringer having an impedance of 1,050 ohms and a resistance of 1,000 ohms?

$X = \sqrt{Z^2 - R^2}$, or (a) $Z^2 = 1{,}050 \times 1{,}050 = 1{,}102{,}500$. (b) $R^2 = 1{,}000 \times 1{,}000 = 1{,}000{,}000$. (c) $1{,}102{,}500 - 1{,}000{,}000 = 102{,}500$. $X = \sqrt{102{,}500} = 321$ ohms.

It is seen that inductive reactance like resistance is measured in ohms; in fact it has much the same effect in a circuit as though the resistance were increased.

(To Be Continued.)

V V

Florida Company Stockholders Vote 3-for-1 Split of Common

Stockholders of the Peninsular Telephone Co., Tampa, Fla., at the annual meeting on Mar. 25 approved a 3-for-1 split of the common stock to be distributed to holders of record Apr. 20.

At a directors meeting a dividend of 40 cents was voted on the common to be outstanding after the split, payable on July 1 to stock of record June 10. This is equivalent to the dividend of 60 cents previously declared on present outstanding common, payable Apr. 1.

Currently the company has under way an offering to shareholders of one share for each five held, for which rights expired Apr. 1. At completion of this series of transactions, Peninsular Telephone will have about 660,000 shares of no-par common outstanding.

V V

Michigan Independent's Manager Sets Record in March of Dimes

James F. Van de Vusse, general manager of the Union Telephone Co., Owosso, Mich., as chairman of the Shiawassee County March of Dimes committee, recently set an all time record for the county by collecting $16,438 for the polio foundation.

Mr. Van de Vusse received a letter of congratulation from Michigan Gov. G. Mennen Williams for the part he had in making the campaign a success.

V V

W. Va. Company Incorporated

A charter of incorporation recently was issued to the Hardy County Telephone Co., Inc., by the Secretary of State of West Virginia.

It was reported in Moorefield that the corporation will seek a loan from the Rural Electrification Administration.

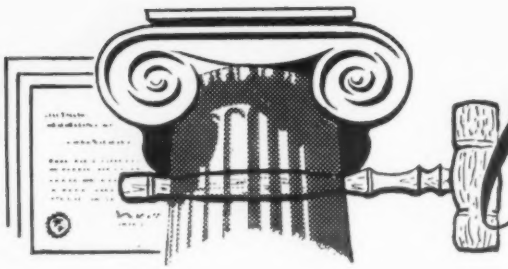
V V

It has been said that experience is what a man does with what happens to him.

SYMBOL DESIGNATION CHART

Symbol	*Definition*
ac	Alternating current.
B	Susceptance in Mhos. The reciprocal of impedance in an alternating current circuit.
bfd	Bicro farad. A unit of capacitance equal to one-billionth of a farad.
CEMF	Counter electromotive force. An opposed or reversed EMF which tends to set up a current opposite to that of a source.
C	Capacitance. One of the three electrical quantities present in a telephone circuit.
dc	Direct current.
EMF or E	Electromotive force or voltage.
E^2, I^2, R^2	Denotes that the value of E, I or R is multiplied by itself, or squared.
Ec	The subletter "C" indicates it is the EMF across the capacitor that is involved.
El	The subletter "L" indicates it is the EMF across the inductance that is involved.
Er	The subletter "R" indicates it is the EMF across the resistance that is involved.
f	Frequency in cycles. "f" also indicates farad.
G	Conductance. The reciprocal of resistance.
I	Intensity of current in amperes.
L	The unit of inductance—measured in henrys (abbreviated h).
μf mfd	Micro farad. Practical unit of capacitance and equal to one-millionth of a farad. μ denotes small Greek letter "mu" and is used as a prefix for micro.
μμf mmfd	Micro-microfarad. A unit of capacitance and equal to one-millionth of a microfarad.
Mho	The unit in which conductivity is measured.
R	Resistance. Measured in ohms.
$R_1+R_2+R_3$	Symbols with subscripts such as R_1, R_2 and R_3 are read "R sub one plus R sub two plus R sub three" and identify the quantity represented. All that is required is to substitute the numerical values of the letters and then perform the indicated mathematical operation.
T or t	Time in seconds.
V	Volt.
W	Watt. The unit of electrical power.
X	Net reactance in ohms.
Xc	Capacitive reactance in ohms. The subletter "C" indicates that the reactance is due to capacitance.
Xl	Inductive reactance in ohms. The subletter "L" indicates that the reactance is due to inductance.
Y	Admittance. Measured in ohms. The reciprocal of impedance.
Z	Impedance. Measured in ohms. The total opposition to an ac EMF sending a current through a circuit against the combined effect of resistance, inductive reactance, capacitive reactance.
π	Greek letter "pi" pronounced "pie." Represents 3.1416.
2π	Two pi. Equal to $2 \times 3.1416 = 6.2832$.
ω	Greek letter "omega." Used as a substitute for $2\pi f$.

Chart 1



Courts and Commissions

Nebraska Independent Granted General Rate Increase

The Cambridge (Neb.) Telephone Co. on Mar. 13 was granted general rate increases by the Nebraska Railway Commission. The new rates, effective on Apr. 1, and the old are:

	Old	*New*
One-party business	$3.00	$4.25
Two-party business	2.85	3.50
One-party residence	1.80	2.75
Two-party residence	1.65	2.00
Switching service	.50	.75

The company does not employ a prompt payment discount plan.

The new rates will produce a net return of 6.44 per cent a year, on a net book rate base of $28,651. Additional gross revenue is estimated at $3,811.20 a year. Increased maintenance expense, operators' wages and taxes prompted the filing of the application.

The company provides common battery service to 404 subscribers at Cambridge and 204 switching subscribers. Free service is provided to the nearby communities of Holbrook, Bartley and Stockville.

There was only one protest made at the hearing.

V V

Bills Changing Rate Procedure Introduced in N.C. Legislature

Identical bills were introduced in both houses of the North Carolina legislature on Mar. 18 which would change the procedure of the North Carolina Utilities Commission in setting the base for establishing rates for public utilities.

Under the proposed measure, the rate base would be established as the original cost of the property less depreciation. The present base is set on the cost of reproducing the utilities' properties rather than on actual investment.

The bills would direct the commission to fix rates so the utility could "by economical and efficient management of its operation . . . earn from such services a fair return upon its rate base so determined."

A "fair return" would be interpreted as an amount sufficient to cover depreciation, taxes, interest on indebtedness, operating expenditures, dividends on preferred stock, "reasonable" dividends on common stock and "a sufficient addition to surplus to enable such common carrier or utility to attract upon reasonable terms such additional capital as it may require in order to render adequate service."

The present North Carolina statute directs the commission to determine rates by considering "the value of the property of such carrier, person or corporation. . . . or the fair value of the service rendered," and states:

"It shall furthermore consider the original cost of construction thereof and the amount expended in permanent improvements thereon and the present compared with the original cost of construction of all its property within the state; the probable earning capacity of such property under the particular rates proposed and the sum required to meet the operating expenses of such carrier, person or corporation, and all other facts that will enable it to determine what are reasonable and just rates."

The present law has been the subject of controversy in several major rate cases.

* * *

Representatives of telephone companies and other utilities appeared before committees of the North Carolina Legislature on Mar. 27 to oppose a bill which would change the formula the North Carolina Utilities Commission uses in fixing rates.

So many companies wanted to be heard that the House and Senate public utility committees were unable to get around to them all and delayed action on the measure with the explanation that a second hearing might be held later if telephone and power company representatives feel another session is necessary.

There were indications that at least a portion of the members of the two committees already had decided to report the measure unfavorably.

The bill would establish as the rate base the original cost of the property less depreciation, instead of the consideration of reproduction cost of a company's properties, a "fair value" of the properties, and other factors.

Assistant Attorney General I. Beverly Lake told the committees that the only purpose of the bill was to provide a "plain intelligible" standard for fixing rates that would be fair to the rate-payers and would provide a fair return to the companies and their investors. He said the present law provides "no workable, intelligible guide for anybody." The new formula, he added, would provide the companies enough to pay all expenses, taxes, fixed charges, fair dividends to their stockholders and add reasonable amounts to surplus. He noted that the commission had followed those same standards recently in granting a rate increase to the Western Carolina Telephone Co., Weaverville, and said a Southern Bell official had volunteered, during the Bell rate case, that such a standard is fair.

Also speaking for the bill was Commissioner Joshua James, who declared he was speaking only for himself but wanted to "go on record as one member of the utilities commission in favor of the bill." He added that he had been asked by three of his colleagues to make it clear that they were opposed to the bill and said he didn't know what position has been taken by the other commission member.

Utility company representatives denied contentions that the new bill would not harm utilities, and stated that it would place the rate base in a straightjacket and prevent the commission from considering the effects of normal business conditions.

V V

Request Approval of Sale of Indiana Independent to Bell

Cope (Ind.) Mutual Telephone Co. is seeking approval of the Indiana Public Service Commission for the sale of its properties to the Indiana Bell Telephone Co.

Many of the 60 customers of the Cope system appeared at a hearing on Mar. 25 before Commissioner Wallace Weatherholt to plead for its acquisition by the Bell company.

Ralph Lowder, Martinsville, attorney for the petitioners, asked the commission to declare the area covered by the Cope exchange open territory.

The case will be presented to the full commission for a decision, Mr. Weatherholt said.

Southwestern States' Preferred Issue Approved in Arkansas

The Arkansas Public Service Commission on Mar. 27 authorized the Southwestern States Telephone Co., Brownwood, Tex., to issue 60,000 shares of preferred stock at $25 a share (TELEPHONY, Mar. 28, p. 27).

The issue, which would total $1,500,000, would finance construction and expansion of company facilities.

The commission was told at a hearing that the company's construction budget for this year was $4,333,300, of which $418,000 will be spent in Arkansas.

V V

Grant Rate Increases to Three Minnesota Independents

Minnesota Railroad & Warehouse Commission granted rate increases to the following three Independents, to the first two on Mar. 3, and the third on Mar. 4.

Eckles Telephone Co., New Prague, was authorized increases designed to raise operating revenues from $23,521 to $30,215 and net income from $764 to $3,776, a 5.42 per cent return on an original cost of plant of $69,679. The old and new rates are:

One-party business	$3.25*	$4.00
Two-party business	2.75*	3.50
Rural multi-party business	...	3.00*
One-party residence	2.00*	2.75
Two-party residence	...	2.50
Three-party residence	...	2.25
Four-party residence	1.75*	2.00
Rural multi-party metallic	2.00*	2.50*
Rural multi-party grounded	1.75*	...
Switching service	.50	1.00

Mileage charge, for one-party service beyond the base rate area, each ¼ mile or fraction thereof, $0.25.

Mileage charge, for service beyond the local base rate area, each ⅛ mile or fraction thereof:

One-party	.30
Two-party, each subscriber	.20
Four-party, each subscriber	.15

*An additional charge of 25 cents per month for a handset instrument.

The Eckles company serves approximately 615 local, 125 rural and 47 service stations.

* * *

Milan Mutual Telephone Co.'s rate increases were calculated to raise operating revenues from $14,516 to $18,401 and net income from $423 to $2,287, a return of 4.72 per cent on a plant originally costing $48,488. Approximately 180 local and 231 rural stations are served by the company.

* * *

Rate increases for the Redwood County Telephone Co., Redwood Falls, were authorized for the company's exchanges at Morgan, Wabasso, Walnut Grove, Wood Lake, Belview, Echo and Vesta, and the rural area adjacent to Redwood Falls. Operating revenues were expected to rise from $88,536 to $102,682, and net income from $5,604 to $14,023, a 5.34 per cent return on an original cost of plant of $262,637.

Old and new rates at the company's eight exchanges are:

	One-Party Business		*Two-Party Business*		*One-Party Residence*		*Two-Party Residence*	
	Old	*New*	*Old*	*New*	*Old*	*New*	*Old*	*New*
Redwood Falls	$ ...	$5.00	...	$4.50	$ ...	$3.50	$ ...	$3.00
Morgan	4.50	5.00	...	4.50	3.00	3.50	2.75	3.00
Wabasso	4.50	5.00	...	4.50	3.00	3.50	2.75	3.00
Walnut Grove	4.50	5.00	...	4.50	3.00	3.50	2.75	3.00
Wood Lake	4.00	5.00	...	4.50	2.75	3.50	2.50	3.00
Belview	4.00	4.50	...	4.00	2.75	3.00	2.50	2.50
Echo	4.00	4.50	...	4.00	2.75	3.00	2.50	2.50
Vesta	4.00	4.50	...	4.00	2.75	3.00	2.50	2.50

	*Four-Party Residence**		*Rural Multi-Party Business**		*Rural Multi-Party Residence**		*Switching Service*	
	Old	*New*	*Old*	*New*	*Old*	*New*	*Old*	*New*
Redwood Falls	$ ...	$2.50	$3.75	$4.00	$3.25	$3.50	$ ...	$ ...
Morgan	2.50	2.50	3.50	3.75	3.00	3.25	.75	1.00
Wabasso	2.50	2.50	3.50	3.75	3.00	3.25	.75	1.00
Walnut Grove	2.50	2.50	3.50	3.75	3.00	3.25	.75	1.00
Wood Lake	2.25	2.50	3.50	3.75	3.00	3.25	.75	1.00
Belview	2.25	2.25	3.50	3.75	3.00	3.25	.75	1.00
Echo	2.25	2.25	3.50	3.75	3.00	3.25	.75	1.00
Vesta	2.25	2.25	3.50	3.75	3.00	3.25	.75	1.00

*An additional charge of 25 cents per month for a handset instrument.

Old Billing: All local rates to be billed monthly in advance and a discount of 25 cents to be allowed on all local gross rates if paid on or before the 15th day of the month in which service is rendered.

All rural rates to be billed quarterly in advance and on all rural gross rates a discount of 75 cents to be allowed if paid on or before the 15th day of the first month of the quarter in which service is rendered; a discount of 50 cents if paid on or before the 15th day of the second month of the quarter in which service is rendered; and a discount of 25 cents if paid on or before the 15th day of the third month of the quarter in which service is rendered.

New Billing: All rates to be billed monthly in advance at the *net* rate. Payment is due when bill for service is rendered.

For those subscribers who are switched through the Northwestern Bell Telephone Co.'s exchange at Redwood Falls and who desire service on switch line circuits where there are four or less subscribers, the Redwood County company will pay the first 75 cents of the minimum charge per circuit made by Northwestern Bell and the balance of such charge shall be equally divided between the subscribers on said circuit.

The Redwood County Telephone Co. serves approximately 1,052 local, 761 rural and 439 service stations.

Illinois High Court Refuses Commission Bell Case Rehearing

The Illinois Supreme Court on Mar. 26 refused the Illinois Commerce Commission a rehearing of its decision ordering the commission to rehear the rate increase case of Illinois Bell Telephone Co. The high court upheld the Kane County Circuit Court in a ruling which granted Illinois Bell a rehearing of its rate case by the commission (TELEPHONY, Jan. 31, p. 30; Feb. 7, p. 28, and Feb. 14, p. 21.)

As a result of the supreme court's refusal to rehear its decision, it was reported H. R. Begley, assistant attorney general of Illinois, would seek an injunction from the Kane County court to prevent the company from putting into effect at once the 22.8-million-dollar annual rate increase originally asked by Illinois Bell on Jan. 12, 1951. The commission denied the rate increase in an order in December, 1951. The commission's decision was then taken into court by Illinois Bell.

The supreme court modified its former order and said the commission, "in failing to take into account current economic conditions, present price levels, and reproduction costs," had clearly erred in "relying on an interest-plus-dividend formula as an exclusive rate-making guide."

Illinois Commerce Commission Chairman Perrine interpreted the action as meaning that the rate increase request should be reopened.

A spokesman for the telephone company held that the full rate increase could go into effect as soon as the supreme court's mandate is received in the Circuit Court of Kane County. Company attorneys, however, had

(Please turn to page 32)

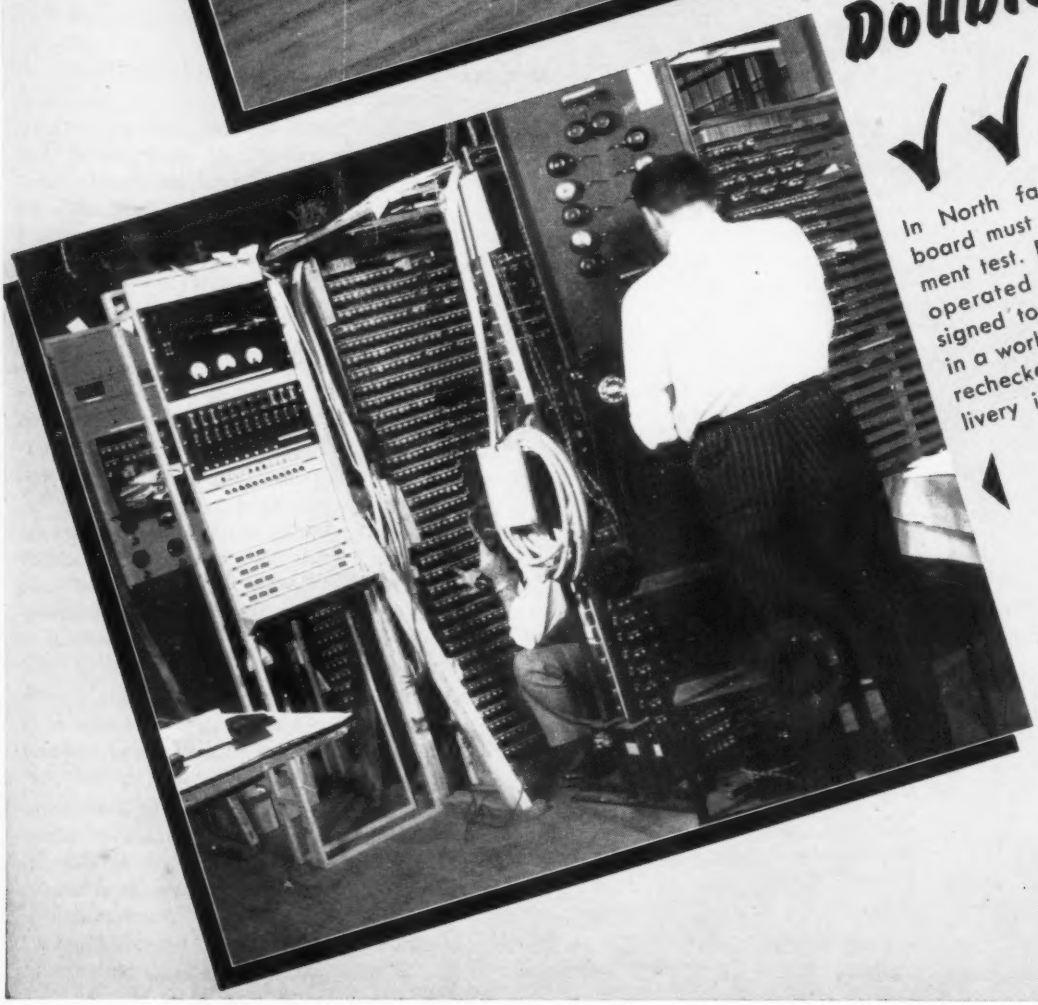
Why NORTH

It Starts Here

In North laboratories imagination combines with science in a never-ending search for new applications of all-relay telephony. Each step must improve performance, simplify installation and, if practical, reduce cost. Above all, it MUST maintain the standard of dependability for which the name NORTH has stood for more than half a century.

Double Checked ✓✓ Here!

In North factories every switchboard must pass a rigid pre-shipment test. Each is assembled and operated under conditions designed to prove its dependability in a working installation. It is then rechecked and readied for delivery in ready-wired bays.



NORTH

All-Relay Assures Dependability

North All-Relay Exchanges are made from 10 lines to 10,000 lines, with suitable provisions for system expansion.

Pays Off Here!

The extra thought and time invested in North equipment by both laboratory and factory show up in increased bankable earnings for telephone companies the world over, whether they operate single small boards or systems covering many cities and towns. Minimum supervision in all phases of operation, maximum rate-earning traffic on every line, improved satisfaction to subscribers *and* stockholders . . . these are the "pay-off" benefits brought to you by North All-Relay . . .

In *Truly* Automatic Telephone Systems

THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of ***ALL RELAY*** *Systems of Automatic Switching*

655 South Market Street, Galion, Ohio, U.S.A.

reached no decision on when the increase could be charged.

Wages have increased more than 24 million dollars a year during the 27 months that the telephone company has been waiting for the 22.8-million-dollar increase, the spokesman said.

The commission last year, in denying an increase, said it considered 472 million dollars as "fair value" of the Illinois Bell properties in Illinois. The company had claimed its reproduction cost was 642 million dollars and the original cost, less depreciation, was 443 million dollars.

V V

Southern Bell Announces $30,000,000 Bond Issue

Following a regular meeting of the Southern Bell Telephone & Telegraph Co.'s board of directors on Mar. 23, President Fred J. Turner announced the authorization for the issuance of 24-year debentures in the amount of 30 million dollars to be offered for sale at competitive bidding. It is expected that these debentures will bear a date of May 1, 1953.

Mr. Turner said the company plans, subject to the effective date of a registration statement to be filed with the Securities & Exchange Commission, to extend invitations for bids on Apr. 27, and to determine on May 5, the successful bidder for the issue.

The South's extraordinary industrial and commercial development which has increased tremendously the demand for telephone service has also heavily increased Southern Bell's requirements for capital funds to expand and improve facilities, Mr. Turner said. Proceeds from sale of the debentures will help provide the capital needed to continue the company's record-breaking construction program throughout its nine-state service area.

V V

Files Rate Plea in Ohio

The Camden (Mich.) Rural Telephone Co. on Mar. 18 filed a new rate increase application with the Ohio Public Utilities Commission for its Cooney, O., exchange. The proposed rates would increase one-party business service from $3.25 to $7.50, one-party residence from $2.55 to $5.00, and rural residence from $2.10 to $3.50.

V V

Names Indiana Commissioner

M. Elliott Belshaw, a Hammond, Ind., attorney who lives in Munster, was named on Mar. 21 to the Indiana Public Service Commission by Gov. George N. Craig. He will be one of two Republican members on the three-man commission.

Laying Cable Across A Frozen Lake

LAYING a submarine cable in the middle of winter may present difficulties, but at Higgins Lake in the Roscommon, Mich., exchange area of Union Telephone Co., Owosso, the ice made the job easier (see cut).

In preparation for the cable laying, a stake line was laid across the route with each stake numbered and placed 200 feet apart. With the aid of a jeep and snow plow attachment, the snow was cleared from the ice. Commercial ice-cutters were hired to cut a channel 6 to 8 inches wide along the route. A power saw which would cut to a depth of 14 inches was the only equipment available for the job, but because thicknesses of 16 to 20 inches of ice were encountered, it was necessary to complete the cut with ice hand saws.

The distance across the lake at this point measured 4,275 feet which meant that 8,550 linear feet of ice had to be cut. As the ice was cut, it was broken into short lengths, and with the aid of pike poles, pushed back under the remaining shelf of ice.

The submarine cable (11-pair, 19 gauge, tape-armored) was on reels in lengths of 900 to 1,500 feet. The reels were loaded on a dray made of 4-by-4 wood timbers with a 2-inch plank bed and supported on cable reel jacks. The dray and reel were pulled onto the ice by the jeep; the cable was laid into the channel as it unreeled.

Three splices were made in the cable during the run. After each splice was made and wiped, it was pressure-tested for leaks. To strengthen these splices and reduce the possibilities of damage in handling, pieces of 1½-inch angle iron 4 feet long were secured to the splice and wrapped inside the spirals of tape armoring.

As an additional precaution, the entire joint was painted with cable compound. Accurate measurements were made and recorded to locate each splice, in the event of future trouble. Depth soundings were taken at each splice and at various other places across the channel. The deepest spot sounded measured 88½ feet.

The depth of the lake, or rather the lack of it, presented another problem near both shores. The west side of the lake is quite shallow for a distance of 300 feet while this shallow bottom extends 1,000 feet from the east shoreline. To protect the cable from any future damage as a result of exposure, it was plowed into the sand bottom about 1 foot deep by means of a special plow designed for the purpose.

The plow consisted of a heavy sheet steel frame, 2 feet long, 1 foot high and 4 inches wide fabricated around a 2-inch pipe with a steel plow point welded to the front.

The cable was threaded through the pipe and was plowed into the sand as the plow was pulled by the jeep or the winch line. Long pipes were welded vertically to the plow to guide it. Before using this plow on the actual burying work, experiments were conducted along the sandy area near the shore to be sure it would perform satisfactorily.

The entire job of laying almost a mile of submarine cable required two days with a crew of eight men.

By laying this submarine cable, the company saved 8 or 9 miles of pole line construction in an area where construction conditions are quite rugged, and provided residents of a remote area with telephone service.

Day After Day...

Copperweld TRADE MARK LINE WIRE

SPEAKS FOR ITSELF

IN PERMANENTLY BETTER VOICE TRANSMISSION . . .

Due to its thick, molten-welded copper covering, Copperweld* Line Wire has the best electrical conductance of any high-strength conductor. And Copperweld retains its original voice and high frequency transmission properties permanently, because it is impervious to rust—the enemy of good voice transmission.

IN PERMANENT HIGH STRENGTH . . .

The copper-protected steel core of Copperweld Line Wire provides the permanent high strength necessary for stringing safer long spans. That means substantial economies in initial construction costs as fewer poles, accessories and man-hours are required. Also, you save on maintenance because Copperweld is rugged—able to withstand severe weather conditions.

IN LONG, ECONOMICAL, RUST-RESISTING LIFE . . .

When you string Copperweld Line Wire, you can count on a lifetime of trouble-free service at lowest annual cost. That's because this dependable conductor gives the permanence and long life of copper plus the strength of steel. Remember—with Copperweld, you can rest assured that rust will never attack and weaken your lines. Once Copperweld goes up, your operating costs go down—and stay down!

The Copperweld Telephone Data Book should be in your file. If you don't have a copy, write for it today.

*Trade Mark

COPPERWELD STEEL COMPANY

Glassport, Pa.

SALES OFFICES IN PRINCIPAL CITIES

Copperweld Line Wire

STRONG, NON-RUSTING

Costs Less . . . because it lasts longer!

SOLD BY LEADING DISTRIBUTORS

AIR RAID WARNING SERVICE

By CHARLES M. KENNY

Special Service Engineer
General Telephone Co. of California
Santa Monica, Cal.

CIVIL Air Raid Warning service (commonly known as Bell and Lights) was established for the state of California, Office of Civil Defense, in many cities and towns of the service area of the General Telephone Co. of California during January, 1953. Developed by the Bell Telephone Laboratories and approved by the Federal Civil Defense Administration, this service is also in operation in other areas throughout the United States.

The Civil Air Raid Warning (CARW) system provides a rapid means of disseminating CARW alert signals throughout the continental United States to important warning stations in their respective warning areas. These alerts are transmitted by dialing on private line signaling networks which in turn operate audible and visual signals at CARW receiving stations.

CARW alerts originate in the Air Defense Control Centers (ADCC) which are operated by the United States Air Forces. The alerts are transmitted from the ADDCs over private line telephone networks to the keypoint air raid warning (KPARW) stations sponsored by the Federal Civil Defense Agency (FCDA). From these keypoint control stations, the alerts are relayed over the Civil Air Raid Warning networks to state and county Civil Defense Agencies, sheriff, police, fire departments, and finally to the general public through the operation of sirens by the latter organizations.

Four types of alerts are furnished to indicate the nature and severity of an enemy attack: Yellow (confidential, unidentified aircraft approaching); blue (not assigned for use at present); red (attack imminent), and white (all clear), depending upon the type of warning to be disseminated. Specific approval from the State Civil Defense Coordinator is required, if a customer other than the State Office of Civil Defense is to receive the confidential yellow alert signal.

A dial is provided at each keypoint control station from which alerts may be sent. It is mounted in a box with a glass cover, which is normally closed and locked, to avoid unauthorized operation of the dial. However, the lock is so designed that the cover can be forced open under emergency conditions without damage to the dial equipment. This dial is basically like a standard telephone dial. However, it has only five finger holes. They are designated STOP; Y (for yellow); B (for blue); R (for red), and W (for white), respectively. An alert is sent by dialing the letter of the alert twice. Thereafter, this alert continues until STOP is dialed or until a different alert is dialed.

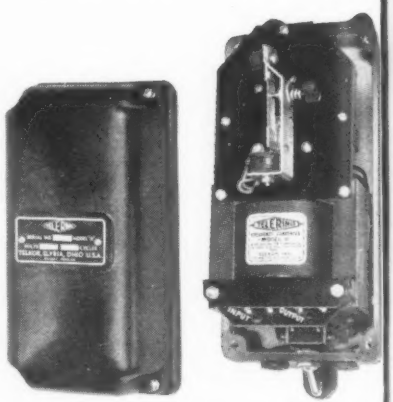
Alerts are received at sub-keypoints and important warning stations by means of coded bells and lights. Such stations are equipped with lights (lamp indicators) and one of the four lamps will flash and a bell will ring during each alert. The significance of the individual lamps is distinguished by the letter designations over the lamps; namely, Y, B, R, and W, respectively. At stations where the confidential yellow and blue alerts are not received, only two of the four lamps, namely the R and W lamps, will light. The bell will ring according to a distinctive code for each alert.

In the event of an alert, state authorities activate the Civil Air Raid Warning network from a central control point, causing a yellow, red or white light to flash intermittently at the premises of all customers who have this service, and a bell to ring according to the type of alert warning. The Civil Air Raid Warning network operates independently of business or residence telephone service, and all of the equipment and/or wire facilities are owned and maintained by the telephone company.

All control stations are equipped with a dial for sending alerts and with CARW station equipment for monitoring alerts sent from the dial. This enables the attendant operating the dial to check the alert transmitted to all CARW receiving stations at other locations on the network. CARW station-receiving equipment should only be located on a vertical surface (wall) within unobstructed view and not in direct sunlight or other brilliant illumination, preferably at a location which is attended 24 hours a day. Customer-furnished power is not required.

Construction Ma
With the Double Gua
and America's Lea

for TELEPHONE
RINGING POWER



Model "R"
4" x 4½" x 10"
Wt. 7½ lbs.

TELERING

is best in
• PRICE
• PRINCIPLE
• PERFORMANCE

An excellent ringing machine for telepho systems large or small, civilian or in milit service.

ALTERNATING and DIRECT CURRE operated units.

Rated output of standard unit, operating 110-115 V, 60 CPS is Approx. 90V, at CPS, 30w. Data on units operating on ot voltages and frequencies furnished on reque

"You will be pleased with your investme

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS • SOUND EQUIP

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

re-designed with new improvements . . .

cook testerm drop wire connector

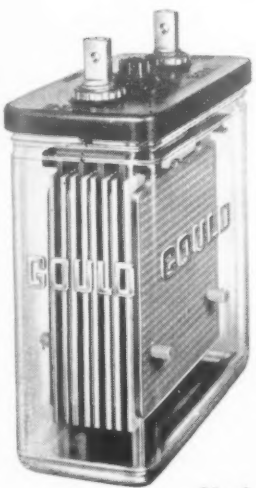
Built of lighter alloys, the new Cook Testerm Drop Wire Connector provides better insulation, reduces shipping costs, simplifies installation, occupies less space and further improves the connecting methods of subscriber drops to open wire.

Overall dimensions of the unit have been reduced but the spacing between the conductors is the same as the original design.

The base and cover are detachable from the mounting bracket by a bayonet locking arrangement of three Everdur studs that are "upset" to prevent loss of nuts during installation. These nuts fit the standard socket wrench. Wire entrances are sealed by a Neoprene gasket to prevent the entrance of insects, dirt and moisture.

The new Testerm Drop Wire Connector Part No. 563-30 supercedes Part No. 563-1

the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

kennecott telephone cable

is pre-tested to operating company requirements

The construction or maintenance engineer judges telephone cable on three points:

1. Efficiency of transmission
2. Uniformity and quality
3. Long life

Kennecott knows this and, before a foot of cable leaves its mill, subjects it to five critical tests:

1. Dielectric Strength
2. Insulation Resistance
3. Conductor Resistance
4. Capacitance
5. Fixed Dimensions

These are everyday specifications. In addition, Kennecott's staff of electrical engineers works constantly to increase the efficiency of its products.

Distributed by STROMBERG-CARLSON

ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

It is believed that loss of life and damage to property such as business records, cash on hand, etc., can be kept to a minimum with sufficient advance notice by means of this service.

The following installation charges and monthly rates are currently applicable for CARW service in the service area of the General Telephone Co. of California:

	Installation Charge	*Monthly Charge*
(1) Control station (sunflower dial) and channels connecting control station with network:		
(a) Each control station	$ 37.00	$ .80
(b) Each alternate control station	37.00	.80
(c) Each local channel	5.00	2.00
(d) Each interexchange channel, per air line mile or fraction thereof		3.00
(2) Receiving station equipment, including necessary channel facilities and central office equipment:		
(a) Each bell and lights receiving station	125.00	5.25
(b) Each public air raid warning siren control arrangement	125.00	5.25
(3) Move or change of control station and receiving station equipment:		
(a) Each control station, bell and lights receiving station, or public air raid warning siren control management: Moved from one location to another on the same premises of the customer	$ 5.00	
Moved from one premises to another premises of the same customer within the same exchange area	10.00	
(b) Change from "No Yellow" alert signal to "Yellow Alert" signal	N/C	

Conditions

(1) A local channel is required for each control station and each alternate control station.

(2) An interexchange channel may be required for connecting a control station or alternate control station to the network.

(A) Interexchange channel charges are applicable in connection with the establishment of a control or receiving station.

(B) Interexchange channel charges are applicable in connection with the establishment of an alternate control station in another exchange.

(3) Where public air raid warning siren control arrangements are furnished, the customer shall provide the sirens, intermediate power relays (where required) capable of handling the power loads imposed by the customer-owned equipment, and the commercial power for operation of the sirens.

V V

Seeks Increase Authority

The Wisconsin Public Service Commission was to have heard on Apr. 2 the application of the Baldwin Telephone Co. for authority to increase its rates.

V V

"It's good to have money, and the things that money can buy, but it's good, too, to check up once in a while, and be sure you haven't lost the things money can't buy."—GEORGE HORACE LORIMER.

Shut-In Children Attend Classes by Telephone

Decatur, Ind., school children who are physically handicapped to the extent that they are unable to attend school, receive an education right in their own homes. It is the same teaching that the children who attend school regularly receive, and the system by which they obtain this training has proved very successful.

Naomi Sheets, the daughter of Mr. and Mrs. Gerald Sheets, has been confined to her home for several years. The same is true of John Paul McAhren, son of Mr. and Mrs. Paul McAhren. The two children, both 11, have spinal ailments which keep them from going to school. They are bedridden most of the time and it will be at least several years before they are able to attend school. Nevertheless both of the children were promoted from the fifth to the sixth grade during the past year and there is reason to believe they will advance to the seventh grade right along with their more fortunate classmates.

The Citizens Telephone Co., Decatur, cooperated to provide facilities which make the children's daily classes possible. The company provided telephone hookups with the classroom. By direct wires from the homes of the shut-ins, to the school, the two youngsters attend classes daily during the school year. The two-way system allows them to hear what occurs in the classroom. There is a loud speaker attached to the telephone at their bedsides. They hear every word the teacher and their classmates say. They can ask the teacher questions, and she in turn, questions them. In this manner the two children receive nearly the full benefit of the classroom.

The system is inexpensive. The school paid part of the cost, the telephone company paid the rest and installed wires and speakers at no charge. All the children have to do is press a button whenever they want to ask a question. In other words, the system works much like a two-way radio.

The two children and their parents are very enthusiastic about the project and the youngsters make excellent progress. They look forward eagerly from day to day to class participation, even though they cannot attend school in person. The children's parents credit this arrangement with having a lot to do with John and Naomi's physical improvements, and their happier mental outlook.

V V

Indiana Company Sells Stock To Finance Conversion

The Bloomingdale (Ind.) Home Telephone Co. recently was reported selling stock to finance improvements which will include an automatic telephone system. More than $1,300 worth of stock has been sold in recent months, and a limited number of shares are still available to the public.

A new automatic switchboard, new line construction and dial telephones are involved in the program of improvements planned by the company, it was reported.

V V

Columbia U. Plans Second Utility Management Workshop

A research study of educational films, film strips, and recordings for use in management development programs has been completed for the second Utility Management Workshop. The workshop, designed for executives of electric, gas, telephone and water companies, will be conducted by Columbia University, department of industrial engineering, on May 18-29, to study the characteristics required in executive jobs and how these characteristics can be discovered and developed.

Copies of the "Annotated Bibliography of Audio-Visual Aids for Management Development Programs" will be distributed to utility executives attending the workshop, and are also being offered for sale to the public by Research Service, 353 W. 57th St., New York 19, N. Y. at $2.50 a copy.

Professor Robert Teviot Livingston of the industrial engineering department, workshop director, said that an extensive review had been made of 16 mm. motion pictures, film strips, and tape recordings to select those which had specific value for executive training and management development programs. The bibliography contains data

and comments on 109 different items and is subdivided into the following sections: Management development programs; the executive and his job; selection and placement; executive training; industrial engineering and management; supervision and leadership; human relations; public relations, and social problems.

In addition to providing copies of the study to the executives attending the workshop, a collection of audio-visual aids is being assembled and will be available to workshop members for viewing and evaluation at Arden House, the former Harriman mansion in the Ramopos, where the workshop will be held. This is just one of the modern techniques used at the workshop. The utility executives will also be provided with work kits of other research materials and selected publications, will have a reference library collection at their disposal, and will be assisted in their studies by the Columbia University staff and research team, conference leaders, counselors, and visiting experts.

Professor Livingston said the "Annotated Bibliography of Audio-Visual Aids for Management Development Programs" was the first bibliography to be published in this specialized field.

V V

It has been said that the only safe place to fall asleep at the wheel is in a drive-in theatre.

Answers to Traffic Questions On Page 15

(1) When the operator encounters a delay in advancing the call, for example, NC, or no trunk to the routing or directory position, or if an auxiliary at your office acknowledges your request instead of at once furnishing the information requested, or if you are locally directed to do so on a call received over a manual office recording trunk for a telephone from which switchhook supervision will be received.

(2) Ask, "Did you make this call earlier today?"

(3) Say, "(Called place), (address name)."

(4) The operator should make frequent attempts to secure a trunk. At the end of one minute, report the case to the service assistant and continue efforts to secure a trunk.

(5) Make attempts to secure the line at least once every two minutes until it is secured.

Announcing

A New Sales System for

DIAMOND

Telephone Wire

The Diamond Wire and Cable Company has long been a leading manufacturer of telephone wire. Formerly this wire was distributed through a separate sales organization. Now it becomes an integral part of the nationally famous line of Diamond Wire and Cable. Our Telephone Wire now carries the Diamond name, and is available exclusively through the Diamond distributing organization. With Diamond Telephone Wire an integral part of our line, we will be able to offer better engineering and sales service, greater convenience of direct factory-to-you distribution.

THE WISE BUYER WANTS Diamond Wire

Write for our new catalog on Telephone Wire. It contains full information

DIAMOND WIRE & CABLE CO.

SYCAMORE, ILLINOIS

Manufacturers of Electrical Wire

news on new PRODUCTS

CIRCUIT POWER CROSS PROTECTOR—The ready acceptance of its new single pair Hy-Cap power cross protector has suggested the development of a five-pair Hy-Cap protector which is now being manufactured, the Cook Electric Co. has announced.

The new protector provides a single assembly for five circuits to be mounted on a 10-pin arm requiring only a single ground wire. It is easy to install with only three mounting screws and five pigtail connections. Pole gaining and through bolts are eliminated. Pigtails are factory wired to the protector.

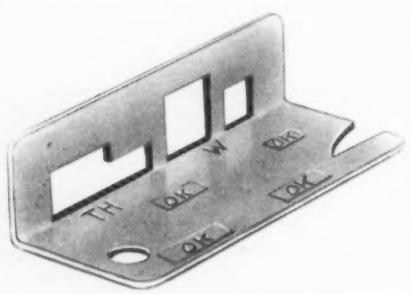
This small size unit is weather proofed with an aluminum cover and sealed with rubber grommets. It is designed to provide an extended arcing period by means of heat radiation fins and to prevent carbon breakdown by means of a light gauge self-destroying cover.

Each electrode is equipped with a fusible element which melts and further reduces the impedance of the fault current path when the power cross continues over an extended period.

It is ideal for economical joint occupancy open wire installations, the company states. Request NP155.

• • •

GAFF GAUGE—Fargo Mfg. Co., manufacturer of wire and cable connectors, announces the availability of a new type Gaff Gauge. It is designed



to check gaffs with greater accuracy, eliminating much of the "guess work" in the proper maintenance of linemen's climbers. "Cut-out" accidents are reduced by more regular inspections and correct re-working of gaffs. The gauge checks the gaff six ways so it may be shaped for efficiency and safety.

The gauge is made of cold rolled steel with a polished chromium plating. Slots into which the gaffs are inserted to check their width and thickness have been cut in the short side of the "L." Reference blocks stamped "OK" determine whether the thickness of gaff at certain points is satisfactory. The length of the gaff is checked to a reference line on the reverse side. A profile slot checks the shape of the gaff point. A small hole at the opposite end makes handling easier. Instructions on proper use of the gauge are included with each shipment. Request NP156.

• • •

STORAGE BATTERIES—A new line of T-H Exide Ironclad batteries has just been announced by The Electric Storage Battery Co.

The new battery, which is essentially the Exide Ironclad using the exclusive slotted tube positive plate, now incorporates new materials and structural changes to give increased capacity.

Polyethylene non-oxidizing slotted plastic tubes keep the active material in constant contact with the grid spines, yet permit free electrolyte penetration throughout the active material. An added feature is the polyethylene acid-proof tube-sealer fitted to the bottom of the positive plate, which seals in the active material and maintains high battery capacity for a longer working life. Grids contain corrosion-resistant Silvium, which also contributes toward longer battery life, the company states.

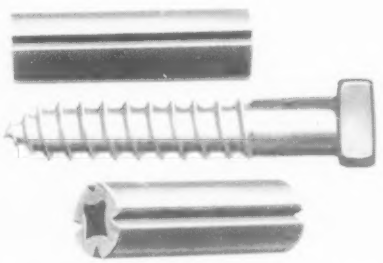
Positive plates in this new T-H Exide Ironclad are larger, and are balanced by extra heavy negative plates. Almost indestructible pormax separators, new homogenized sealing compound, and new seamless rubber jars are other features contributing to the quality and performance of this new battery, according to the company.

Steel trays are sprayed with a plastic coating which is both acid-resistant and also possesses high insulating qualities. New quarter-turn unbreakable plastic vent plugs facilitate quick and easy servicing with water. Request NP157.

• • •

PLASTIC ANCHORS FOR LAG SCREWS—Two new plastic anchors designed for use with ⅜ inch, $\frac{7}{16}$ inch and ½ inch lag screws or corresponding wood screws have been announced by Holub Industries, Inc. They can be used in any material that can be drilled and will support expansion as covered in the data sheet attached.

Underwriters' Laboratories, Inc., has granted these anchors their label for unlimited indoor and outdoor use.



Testing laboratory pull-tests show a holding power of two tons in concrete.

These anchors are made of ethyl cellulose, a thermoplastic material well known for unusual dimensional stability; its ability to withstand extremes in temperature, age, moisture, corrosion, shock and vibration. Also, it possesses excellent dielectric qualities.

The design of these anchors provides two separate sections; one to receive the screw, the other to engage the wall of the drilled hole. As the screw is turned in, the anchor expands and the plastic material cold flows into every crevice of the drilled hole wall. A bonding and fusing action automatically takes place to provide a permanent trouble-free mounting.

Advantages claimed are: Greater holding power, neater work because smaller drilled holes are required, elim-

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation further information on the products described in the following numbers:

NP155____; NP156____; NP157____; NP158____; NP159____.

Name..... Title.....

Company.....

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4/4/53

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✓ Step by step Kennecott Telephone Cable is carefully tested so that the finished product is certain to be reliable, long-lasting and time-resistant.

Every bit of copper wire, insulating tape and sheathing must go through a quality-control program in order to qualify for use in high-grade Kennecott Cable.

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ination of special setting tools, etc., and faster installations at lower cost.

These anchors, which are sold under the trade name "Sand-Scott," supplement a line of smaller sizes for wood screws and sheet metal screws, Nos. 5 through 20, hook and eye screws and ¼ inch and ⅜ inch lag screws. Request NP158.

• • •

SCREW DRIVERS—Crescent Tool Co. has announced a new line of Tenite handle screw drivers, both conventional and Phillips type.

According to the company, the screw drivers' specially designed handle knurl-

ing gives a firm grip, yet is not cut so deep as to cause blisters on the hands of users.

In the standard pattern, blade lengths are 3, 4, 6, 8 and 10 inches; in the cabinet pattern, 3½, 4½, 6½ and 8½ inches. In the Phillips type, blade lengths and corresponding point numbers are 3-inch (No. 1); 4-inch (No. 2); 6-inch (No. 3), and also 6-inch, No. 4. Request NP159.

V V

» A new safety slogan states that the first thing to save for your old age is yourself.

48th Texas Convention

(Continued from page 22)

where the originating revenues from all business of an Independent company will not cover the total costs of the Independent company for handling that interchanged business. He stated:

"In order to give relief to those situations where the revenues generated are not sufficient to cover the costs, and where the connecting company does the operating on the traffic, a supplemental schedule is to be appended to the normal Schedule 'B' payments as a temporary measure for a period of one year to give time to further study the situation and work out remedial measures with the connecting company."

Acceptance of the new schedules upon offering (or within 60 to 90 days) should result in a new agreement being made retroactive to Jan. 1, 1953. The speaker closed with some spectacular growth figures: Plant investment of Independent companies during the past 10 years has increased from 500 million dollars to 1 billion 400 million dollars; number of Independent telephones from 3,025,000 in 1941 to 8½ million at the end of 1952; and gross operating revenues during the past 10 years have increased from 125 million dollars to almost 400 million dollars. What will these figures mount to within the next 10 years, he asked.

Proof of the value of good safety programs in effecting substantial savings in insurance premiums was demonstrated by A. F. Allen, Texas Employers' Insurance Association. By the use of charts, Mr. Allen showed how telephone companies with effective accident prevention plans keep loss ratios down and thus pay lower insurance rates. He reported that some companies pay as high a penalty as $31,000 over a 21-year period on premiums averaging under $10,000 annually—all because of high loss ratios. Another company with good experience on its loss ratio averaged 25 per cent credit on premiums over a 31-year period.

Inflation plus more generous judgments by juries (this is the trend) have pushed rates higher, Mr. Allen stated; thus the only way to keep premiums within reason is to establish effective accident prevention programs.

The last session of the convention was composed of a symposium of brief talks by members of various association committees: (1) Traffic Practices Committee, R. P. Sullivan (General Telephone Co. of the Southwest,

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Accessory items only wanted, selling for under $200. No handsets — no switchboards.

Product must have $100,000 a year sales potential.

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Dallas), chairman; (2) Commercial Practices Committee, F. K. Shock (Texas Telephone Co., Sherman), chairman, and (3) Engineering and Plant Committee, G. T. Sims (General Telephone Co. of the Southwest), chairman. Subjects covered were:

TRAFFIC PRACTICES COMMITTEE: "Call by Number Has Top Priority" by John P. Smith, traffic supervisor, Southwestern States Telephone Co., Brownwood; "Advantages of Multi Card Switchboard Bulletin" by John Robbins, commercial traffic superintendent, San Angelo Telephone Co.; "The Why and How of Multiple Markings" by Mrs. Pearl McDonald, chief operator, Texas Telephone Co., and "Our Operators Should Know Our Business" by R. P. Sullivan, general traffic superintendent.

COMMERCIAL PRACTICES COMMITTEE: "Customer Relations" by E. H. Utzman, commercial superintendent, Southwestern States Telephone Co. (delivered by Bill F. Vann); "Your Telephone Company's Tax Burden" by J. L. Johnson, assistant auditor, General Telephone Co. of the Southwest, and "Outdoor Paystation Development" by L. B. Dunlap, service and sales-manager, Southwestern Bell Telephone Co.

ENGINEERING AND PLANT COMMITTEE: "Small Office Dial Conversion" by W. M. Driggs, chairman, United States Independent Telephone Association Plant Committee, and a film showing "Safety in Offices" by Southwestern Bell.

The convention elected the following directors: Mr. Autry; Fabian Bearden of Baird; Oscar Burton of Tyler; J. T. Chambers of Tenaha; Marion A. Clay of Lufkin; D. H. Comparette Jr. of Kerrville; E. H. Danner of Sherman; Cliff Dowd of Hawkins; D. G. Gardner Jr. of Nocona; Charles Hendrix of Brazoria; Don Hunsaker of San Angelo; George M. Johnson of Santa Anna; A. L. Robb of Electra; K. E. Schuler of Corsicana; T. A. Singer of Dimmitt; Guy Smelser of Bogata; Ben Smith of Dallas; Ralph Sparks of Pecos; D. T. Strickland of Brownwood; S. W. Teas of Floresville, and W. G. Winters of Houston.

The following officers were elected by the directors: President, Mr. Winters; first vice president, Mr. Hunsaker; second vice president, Mr. Gardner; treasurer, P. D. Grinstead of Kerrville, and acting executive secretary, S. H. Shutt of Austin.

V V

» Between 1919 and 1923, the German government printed and spent so much paper money that wholesale prices rose 30 trillion per cent, the Chamber of Commerce of the United States reports.

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The new Model R Ratchet Lever Hoist features Coffing's time-proved Safety-Pull ratchet-pawl construction — plus coil chain for extra flexibility. Chain wraps in any direction . . . resists rust and corrosion. For ease of servicing, the Model R may be completely disassembled in seconds with only a screw driver. For safety, each unit is tested at 100 percent overload.

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Cross section shows lead core; sponge rubber sheath; metal eyelet.

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helpful LITERATURE

ELECTRICAL INSULATIONS—"Quinterra—Quinorgo," is the title of a new 32-page publication just issued by Johns-Manville. It gives complete information about these electrical insulations made of purified asbestos . . . why they were developed, what their characteristics are, where they may be used to advantage.

This publication is both a manual of facts and a descriptive brochure. For the designer of electrical equipment there are tables giving test data on physical and electrical properties. Test methods are fully explained and there is a separate table for each of the several types of Quinterra and Quinorgo.

For the production man there is advice on application techniques and equipment including step-by-step photographic coverage of methods now in use. These picture stories also illustrate improvements in finished products . . . space savings, lower weight, economy of materials and longer service life. The subjects for the picture stories range from heavy duty lifting magnets to hair curlers.

In addition to photographs, many of the picture stories have sectional diagrams showing how, in a single piece of equipment, Quinterra and Quinorgo are used in many different places . . . for core tubes, layer insulation, wire wrapping, interlaminate insulation, end washers and the final wrapper insulation.

The book concludes with a description of allied products such as Quinterrabord, Quinorgobord, Quinterraglass and composites or laminates that utilize Quinterra and Quinorgo but are manufactured by others. Request HL127.

TRENCHER—A new four-page bulletin on the Cleveland Model 320 trencher has just been published by the Cleveland Trencher Co. Performance-proved on thousands of miles of pipelines throughout the world, this Cleveland model has become an outstandingly popular pipeline trencher during the four years it has been on the market.

The folder contains many photographs presenting the 320 in action under all types of job and weather conditions. Text briefly outlines Cleveland advantages and special design features.

Complete dimensions and specifications, including a table of optional cutting widths, are also contained in the two-color folder. Request HL128.

• • •

MICROFILM ENLARGEMENT—A new folder, "Continuous Microfilm Enlargement Service,"—BDS-3, Rev. 1—released by Remington Rand Inc., describes how you can get extra copies of original records and obtain greater use of microfilmed records.

Accurate reproductions produced at high speed savings are available with this new service which allows a convenient means to restore any or all of a microfilm file. In the present business situation microfilm is being increasingly used. Entire duplicate files can be made up on microfilm and paper copies produced when required. Request HL129.

• • •

WEED CONTROL CHEMICALS—A four-page folder is available on chemical weed controllers, manufactured by Brulin & Co., Inc. Four types of weed and brush control products and their

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Chicago 5, Ill.

Please have the manufacturer send me without obligation further information on the products described in the following numbers:

HL127____: HL128____: HL129____: HL130____: HL131____.

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4/4/53

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applications are presented: Non-selective weed killer for destruction of all types of vegetation; Brush-off for selective extermination of touch species such as maple, ash and oak; Dual purpose weed control for use where there is danger of spray drift injuring adjacent vegetation; and 2, 4-R liquid weed killer for control of a large variety of weeds without injury to most types of grass. Request HL130.

• • •

MICROWAVE RADIO LINKS—Economic aspects of multi-channel operation of telephone and telegraph circuits over microwave radio links are emphasized in new Lenkurt bulletin 72A-P16, "Microwave in the Telephone Toll Plant. Among the subjects discussed in this publication are the investment required for microwave equipment, the revenue possibilities which microwave provides, and the way in which the use of microwave affects such problems as future system growth, reliability of service, and installation and maintenance procedures. Request HL131.

V V

Lippert Appointed Graybar Cleveland Operating Manager

H. E. Lippert has been appointed district operating manager at Cleveland for the Graybar Electric Co., replacing A. E. Kostulski, who is retiring, W. E. Henges, president, announced on Mar. 19. Mr. Lippert, whose appointment is effective April 1, was formerly a member of Vice President E. W. Cashman's staff.

He joined Graybar at Cleveland in 1932 and advanced rapidly through the positions of accountant, head of office service, assistant to the district operating manager, and district supervisor of training. A native of Lakewood, Ohio, he studied at Fenn College in Cleveland.

V V

It has been said that all education does today is develop memory at the expense of the imagination.

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Reconditioned and tested EE8 telephones, Army magneto..$20.00 each.
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Terms: check with order FOB Brooklyn, N. Y.

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DUE TO INDUCTION IN ARMED FORCES of my plant superintendent am forced to sell the following exchanges located in North Central Wisconsin-Sheldon Exchange, North Dial, New 1951—167 stations; Hannibal Exchange, magneto, 167 stations; Gilman Exchange, North Dial, New 1949—270 stations. All in good condition, an ideal 2-family setup. Write C. O. Deuel, owner, Gilman, Wis.

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MDF PROTECTORS, W.E. No. 1268A & 1269A, 20 pair groups fully equipped, like new (quantity discounts).....$20.00

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